WESTERN INTERCONNECTION

TRANSMISSION PATH FLOW STUDY

February 2003

Planning Work Group
Seams Steering Group – Western Interconnection

This report was prepared in cooperation with the Western Electricity Coordinating Council and the Committee on Regional Electric Power Cooperation

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SECTION I

INTRODUCTION

The analysis of actual historical power flow data for the transmission system in the Western Interconnection provides an indication of how marketers and load serving entities have utilized the transmission system to market energy and serve load. This information is also useful in the analysis and identification of potential future areas of congestion and for verifying model representation for power flow and production costing analysis.

This work is the latest in a continuing effort building to analyze utilization of the western Interconnection transmission system. Similar analysis was performed by the three western Regional Transmission Associations (RTA) as documented in the latest Biennial Transmission Plan, dated July 2000. Historical data analyzed and included in the August 2001 Western Governor's transmission report was also incorporated. The time period covered by the analysis in this report is from Winter 1998-1999 through Spring 2002.

The analysis was performed for 33 transmission paths, representing all the major transmission paths in the western interconnection.

The analysis utilized real time hourly power flow and operating transfer capability data submitted by path operators and archived in the Western Electricity Coordinating Council's EHV Data Pool database. Most data in the EHV Data Pool database is complete. In some cases, the real time path operating transfer capability was not reported and assumptions were made based upon published path transfer capabilities. These assumptions are noted in this report.

To facilitate comparison among the paths, a utilization indicator was calculated. The same indicator was used in the RTA's Biennial Transmission Plan report. This indicator is calculated as the percentage of time the path exceeds 75% of its operating transfer capability over the season reported. The 75% level was chosen as an indication of a path that may be considered heavily utilized. This figure was developed for purposes of this report and has no basis in terms of an accepted industry standard or practice. The magnitude of the indicator is not necessarily an indication that there is congestion, or an inability to meet the needs of transmission users, on the path. In the western interconnection, paths are designed to be loaded to 100% of their operating transfer capability and withstand a credible outage without violating reliability standards.

A second loading indicator presented in this report, is the peak loading during the season. This indicator does not include a time factor as does the 75% indicator.

The work in this report was sponsored by the Seams Steering Group – Western Interconnection (SSG-WI), which is supported by RTO West, the California ISO and WestConnect. Data used in the analysis was provided by the Western Electricity Coordinating Council. This effort is a product of the SSG-WI's Planning Work Group. Participants in the Work Group include RTO members, marketers, generators, renewable resource interests, non-RTO participating entities, representatives of various western state agencies and representatives of the Western Interstate Energy Board.

SECTION II

PATH FLOW ANALYSIS

Actual archived MW power flow data for the major transmission paths in the Western Interconnection were analyzed from winter 2000-01 through spring 2002, using data from the Western Electricity Coordinating Council (WECC) EHV Data Pool database. Results are presented in this report season and by individual path.

The purpose of the analysis was to determine the historical utilization of the major transmission paths in the Western Interconnection. It should not be concluded from this analysis that it is either necessary or economical to take any corrective actions for the loading levels reported. The results may, however, provide information for identifying paths for further study regarding the potential benefits and costs of increasing their path capacity.

Actual flows were calculated on a per unit basis, referenced to the paths Operating Transfer Capability (OTC). Table I identifies the OTC used for each path. Posted OTC was used unless it was not available.

This report presents the analysis results for the 3 seasons studied.

PATHS ANALYZED

Data for the following paths were analyzed. Path names and path numbers are from the WECC Project Rating Catalog. A map showing the geographic location of the individual paths is included in Figure 2. A list of the lines making up each path may be found in the WECC Path Rating Catalog.

WECC Path #	WECC Path Name
3	Northwest – Canada
4	West of Cascades – North
5	West of Cascades – South
6	West of Hatwai
8	Montana to Northwest
14	Idaho to Northwest
15	Midway – Los Banos
16	Idaho – Sierra
17	Borah West
18	Idaho – Montana
19	Bridger West
20	Path C
22	Southwest of Four Corners
23	Four Corners 345/500 Kv Qualified Path
24	PG&E – SPP
26	Northern – Southern California
27	Intermountain Power Project DC Line

30	TOT 1A
31	TOT 2A
32	Pavant – Gonder 230 Kv
34	TOT 2B
35	TOT 2C
36	TOT 3
45	SDG&E - CFE
46	West of Colorado River (WOR)
47	Southern New Mexico
48	Northern New Mexico
49	East of Colorado River (EOR)
50	Cholla – Pinnacle Peak
51	Southern Navajo
65	Pacific DC Intertie (PDCI)
66	COI
73	North of John Day

ANALYSIS METHODOLOGY

The WSCC EHV Data Pool database was used for the frequency distribution analysis. The analysis period for the frequency distribution analysis was from November 2000 through May 2002. Data from the 2000 Biennial Transmission Plan was incorporated to compare "peak" and "75% of OTC" values for the period from winter 98-99 through spring 2002. Data is grouped by month into the following seasons:

Winter - November 1 through March 31
Spring - April 1 through May 31
Summer - June 1through October 31

Table I summarizes for each transmission path, the years that were analyzed for the three seasons over the period winter 98-99 through spring 02. Table I also identifies the OTC assumption for each path.

Frequency Distribution

The percentage of time a path exceeded a given percentage of its OTC was calculated and presented as a frequency distribution plot for each transmission path, using the hourly MW flow data in the EHV Data Pool database. Plots for the individual paths are presented in Appendices D through G.

Percentage of time Exceeding 75% of OTC

Beginning with the 2000 Biennial Transmission Plan, a utilization indicator was developed. It is defined as the percentage of time over the season that the path loading exceeds 75% of the path OTC. In this report, the utilization indicator was calculated for winter, spring and summer seasons. Based upon WECC reliability criteria, a path may be loaded up to its OTC level and be able to withstand various outage contingencies without violating reliability criteria. Experience has shown, however, that loadings above approximately 75% of OTC may be associated with paths considered to be "congested" from a marketing or

commercial use viewpoint. The 75% value is not based upon any industry standard or guide, and was chosen primarily to establish a figure of merit for ease of loading comparison between paths.

Peak Seasonal Loading

Peak path loading is calculated as the 99 percent probability loading. This means that at this value of path flow, 99% of the hourly loading samples are below this value and 1% of the loading samples exceed this value. This definition for peak loading was utilized in the 2000 Biennial Transmission Plan. It was felt that the absolute maximum hourly value should not be used as this could be associated with potentially erroneous data and a 99% value would be more representative of a peak value.

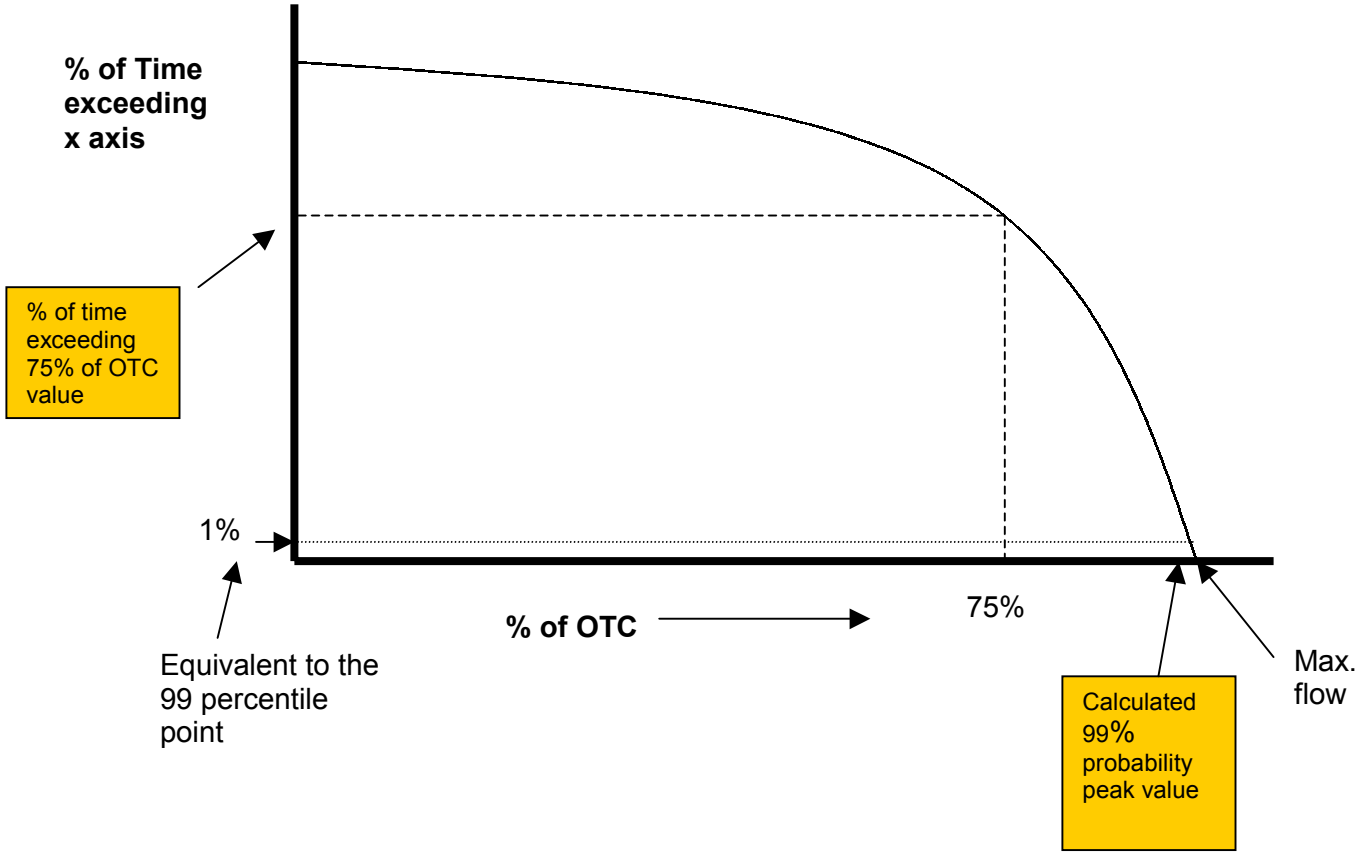
The derivation of the "Percentage of time exceeding 75% of OTC" and the "Peak Loading" values are graphically illustrated in Figure 1.

OTC ASSUMPTIONS

Flow analysis is presented as a percentage or per unit of path Operating Transfer Capability (OTC). Hourly OTC values are reported in the EHV Data Pool database. Those reporting path OTC are supposed to calculate the OTC each hour adjusting reported values for changing operating conditions. This is not always the case, however. In some cases, no OTC values are reported by the path operator and a zero value is included in the database. In some cases, an OTC value is reported each hour, however the value is the same for each hour and is not varied as operating conditions change. In some cases, the OTC data is reported correctly in which case the reported OTC value does vary in magnitude, indicating that the path operator is adjusting the path capability for changing operating conditions.

Table I summarizes the OTC value used in this analysis. If a value is reported by the path operator, whether it is adjusted for changing operating conditions or not, this value is used. If no value is reported each hour and a zero appears in the database, the WECC path rating or the value set by the WECC OTC policy group is used.

Figure 1


% of Time exceeding x axis
% of time exceeding 75% of OTC value
1%
Equivalent to the 99 percentile point
% of OTC
75%
Calculated 99% probability peak value
Max. flow

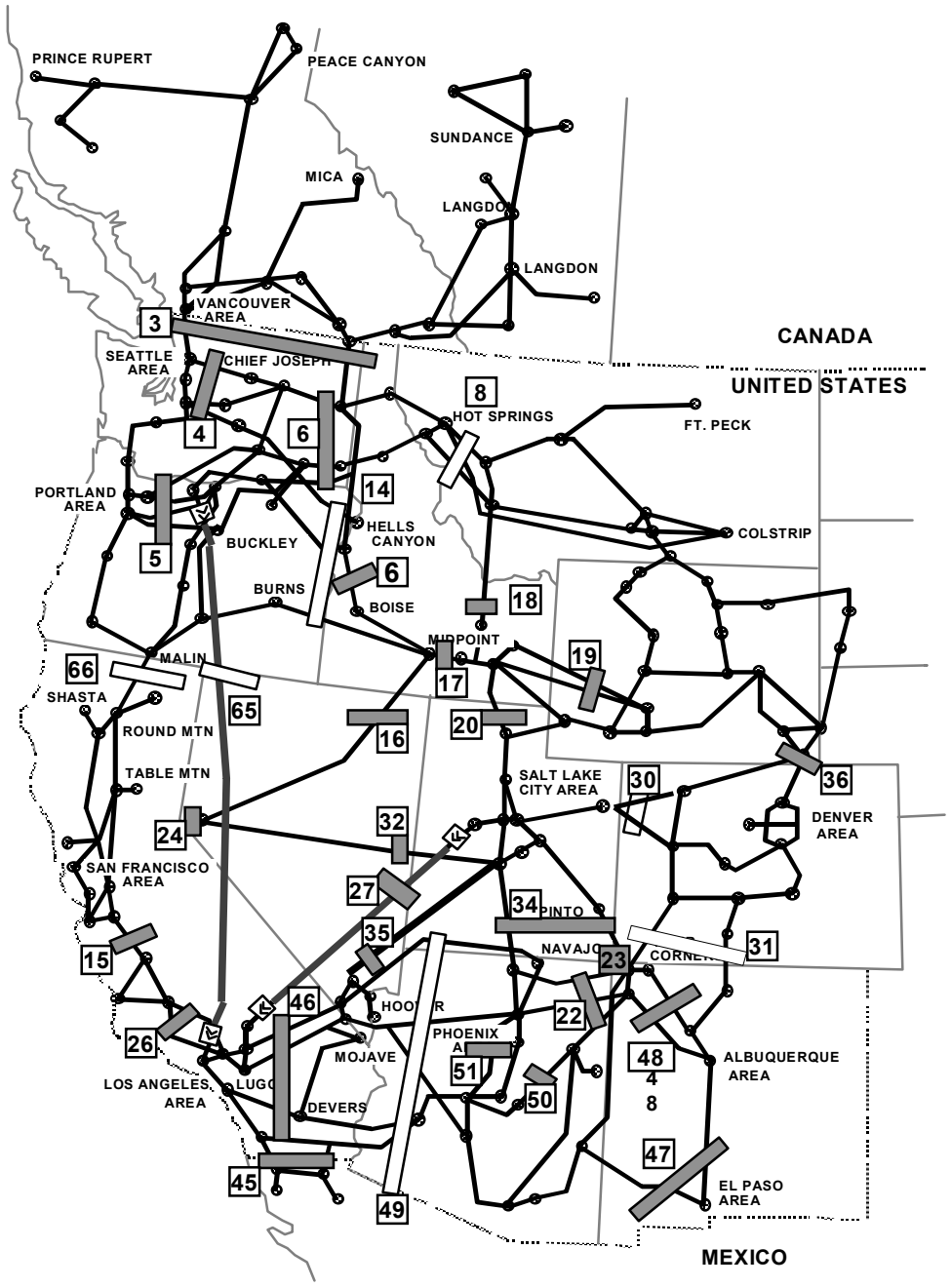


Figure 2

Transmission Paths

ANALYSIS RESULTS

Path Loading Summary Charts – Table II and Table III

The percentage of time each path exceeds 75% of the path OTC is tabulated in Table II for the following seasons:

Winter – 1998-99, 2000-01 and 2001-02
Spring – 1999, 2001, and 2002
Summer – 1999, 2000, and 2001

This represents the percentage of time during the season that the loading on the path exceeded 75% of the path transfer capability. For example, a path with a transfer capability of 1000 MW and a 30% calculated value for spring 2002 means that the path exceeded 750 MW (75% of OTC) for 439 hours (30% of a total of 1464 hours) during the months of April and May 2002. In some cases, a zero is reported for a path. This means that the path did not exceed 75% of the path OTC during the season. A path could have been operated at 74% of the path OTC for the entire season and the calculated value (for the % of time it exceeded 75% of OTC) would be zero.

Seasonal peak loadings are tabulated in Table III. The Peak value reported is the 99% probability value. The 99% value is used to avoid or decrease the likelihood of including erroneously high peak values. Peak values are reported for the following seasons:

Winter – 1998-99, 2000-01 and 2001-02
Spring – 1999, 2001, 2002
Summer – 1999, 2000, 2001

In some cases, no data was available for analysis during the period considered. This is indicated in the table as Not Available (N/A)

Path Loading Summary Bar Chart – 75% of OTC

Appendix A shows graphically the paths with the highest average loadings over a season. Results are presented in order of magnitude, from highest to least.

For each path, only the highest seasonal loading for the three seasons analyzed is presented. For example, path 19 has the highest winter loading in 2000-01, the highest spring loading in 2001 and the highest summer loading in 2000. These are the values that are plotted for path 19.

A line is drawn on the graph at the 50% and 25% levels. This was done to group the paths into loading ranges as an approximate measure of use. The geographic maps in Appendix B also group the paths into these same loading groupings.

Path Loading Summary Bar Chart – Peak

Appendix A also shows graphically the paths with the highest peak loadings. Results are presented in order of magnitude, from highest to least.

For each path, only the highest seasonal loading over the three seasons analyzed is plotted. For example, path 19 has the highest winter loading in 2000-01, the highest spring loading in 2001 and the highest summer loading in 2001. These are the values that were plotted for Path 19.

The data showed a few paths exceeding their OTC limit for their peak flows. In actual operation, path operators make every effort to keep the flows below the OTC limit in real time. It is possible that the data for the OTC limit could have been calculated for a slightly different hour that the posted flow data, depending upon how frequently the OTC value is updated. In some cases, the OTC limit may be calculated for use during the day ahead preschedule period and the actual OTC limit during real time may have been different. If the real time OTC value were higher, this could result in a flow level exceeding the reported OTC value. In the future, the calculation and posting of OTC limits in the EHV Data Pool Database should be reviewed and a standard methodology adopted.

Geographic Path Maps - Path Loading Groupings

Geographic path maps with path loading grouped into the following categories are shown in Appendix B. Loadings are grouped into the following three categories:

- Paths with loadings greater than 75% of OTC occurring more than 50% of the time during a season
- Paths with loadings greater than 75% of OTC occurring between 25% and 50% of the time during a season
- Paths with loadings greater than 75% of OTC occurring less than 25% of the time during a season.

Two maps are presented for each season showing the loading for the most current season and for the highest loading over the past 3 years.

The first figure in Appendix B illustrates which paths have unidirectional flows and which have bi-directional flows. This is described further in the section below, “Frequency Distribution”.

Seasonal Summary – by Region and Path

Appendix C shows the summer and winter frequency distribution plots by Region (Pacific Northwest, Rocky Mountain, Southwest and California). Winter plots represent the combined winter loadings for the 2000-01 and 2001-02 winter seasons. Summer plots represent the combined summer loadings for the Summer 2000 and 2001 seasons. These plots were calculated by totaling the

hours for the two summer and winter seasons and calculating a frequency distribution plot for these total hours.

These plots show graphically which paths in each region are the most heavily utilized during summer and winter, relative to the path OTC over the two year period.

Frequency Distribution

Appendices D through G show the frequency distribution plots for each path by Region. Frequency distribution plots are presented for the total years analyzed and for the most recent season. On each plot, the peak and % of time exceeding 75% of OTC values are tabulated for each season analyzed.

Transfer Limits on the frequency distribution plots are the non-simultaneous limit as published in the 2000 WECC Path Rating Catalog.

For some paths, power flows occurred in both directions during the season. The flows were considered bi-directional if the flows in either direction occurred greater than approximately 10% of the time. For example if a path had flows N to S 95% of the time and flows in the S to N direction 5% of the time, the path was considered to be unidirectional for purposes of this analysis. If the flows in one direction were 85% of the time and 15% of the time in the other direction, the path was considered to be bi-directional and a bi-directional plot was made. For the bi-directional plots, the tabulated 75% values on the plot represent the total time the path exceeded 75% of OTC in both flow directions.

The first figure in Appendix B indicates which paths have unidirectional and which have bi-directional flows. For the bi-directional paths, the predominate direction of flow by season is noted.

SECTION III

OBSERVATIONS AND CONCLUSIONS

The following observations may be drawn from the analysis:

1. The following paths had at least one season over the study period, in which the seasonal loading exceeded 75% of OTC 50% of the time or greater: (These may be considered the more heavily utilized paths relative to their operating transfer capability. This by itself is not an indication that these are the most commercially congested paths. These are also not the most heavily loaded paths in terms of the magnitude of MW loading)

   Path 19 – Bridger West
   Path 27 - IPP DC Line
   Path 50 – Cholla – Pinnacle Peak
   Path 22 – Southwest of 4 Corners
   Path 47 – Southern New Mexico
   Path 30 – TOT 1A (Colorado to Utah)
   Path 36 – TOT 3 (Wyoming to Colorado)

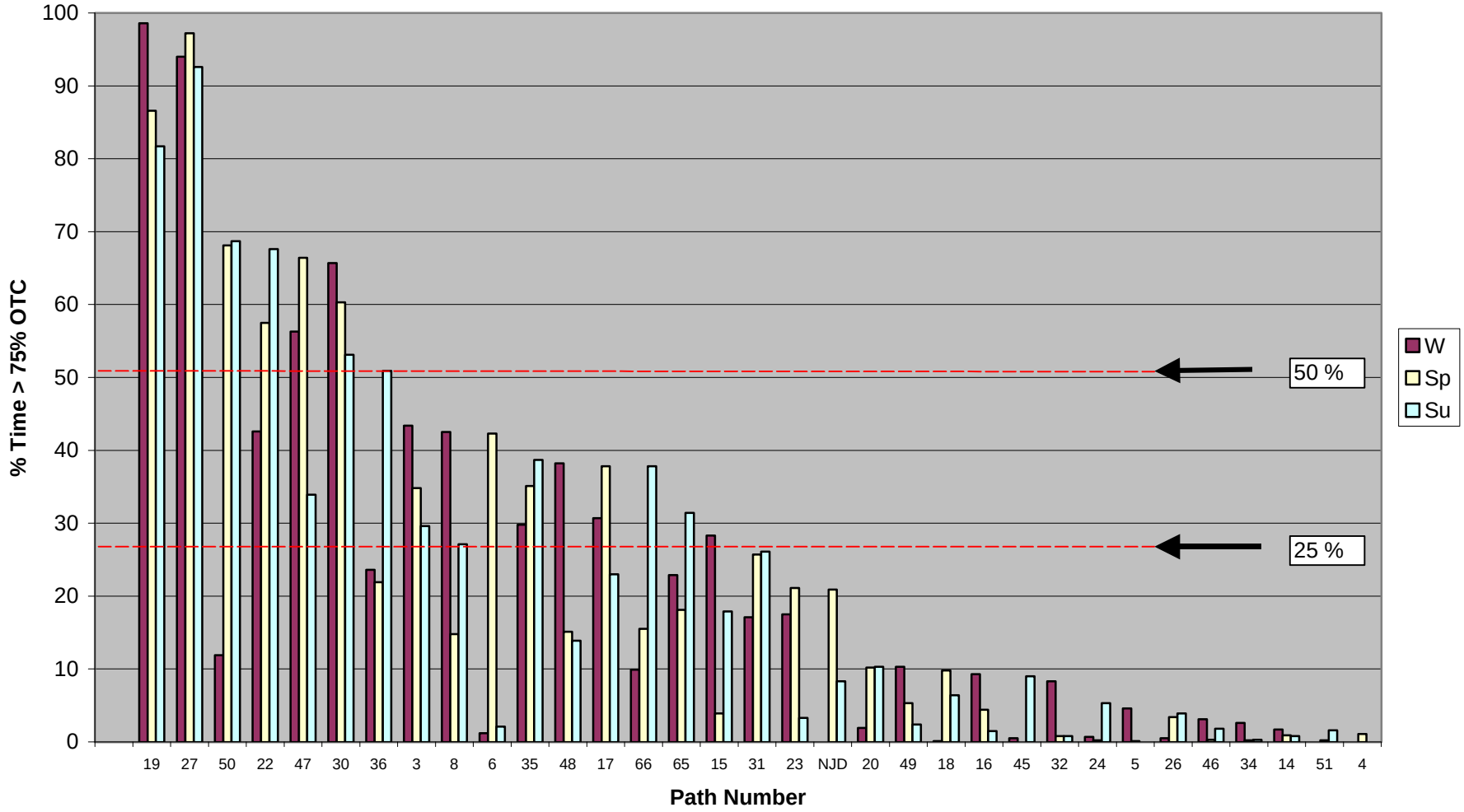
2. Paths with the highest loadings relative to their transfer capabilities are primarily located in the Rocky Mountain and Desert Southwest regions (Wyoming, Colorado, Arizona and New Mexico).

3. The two most heavily loaded paths, West of Bridger and the IPP DC Line, are transmission paths with high load factors dedicated to the integration of generating plants in Wyoming (Jim Bridger) and Utah (Intermountain Power Project).

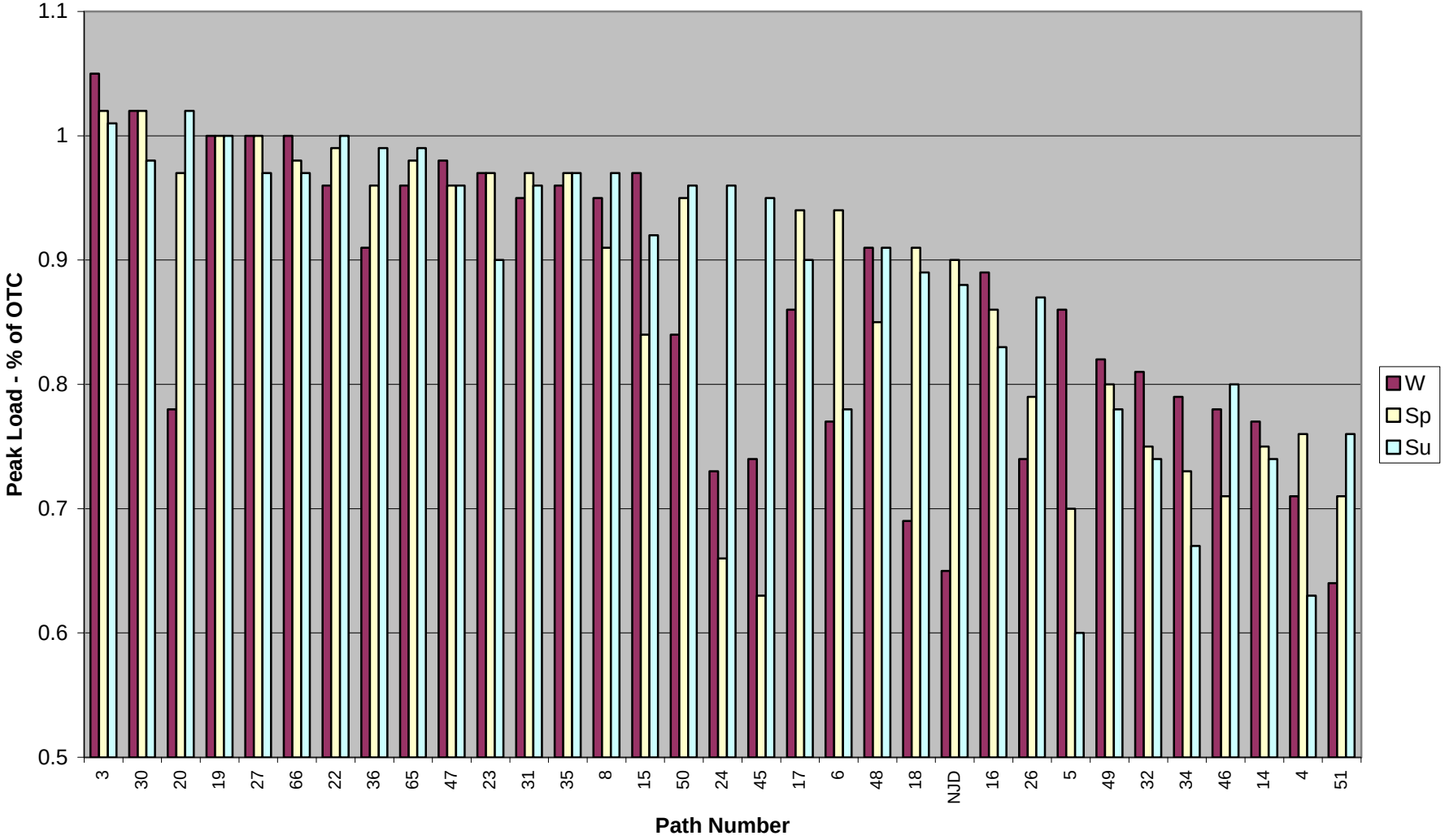
4. For use in future analysis, improvements should be made in the data reporting procedures for data to be included in the WECC EHV Data Pool database. One area that should be reviewed is the calculation and reporting of OTC limits.

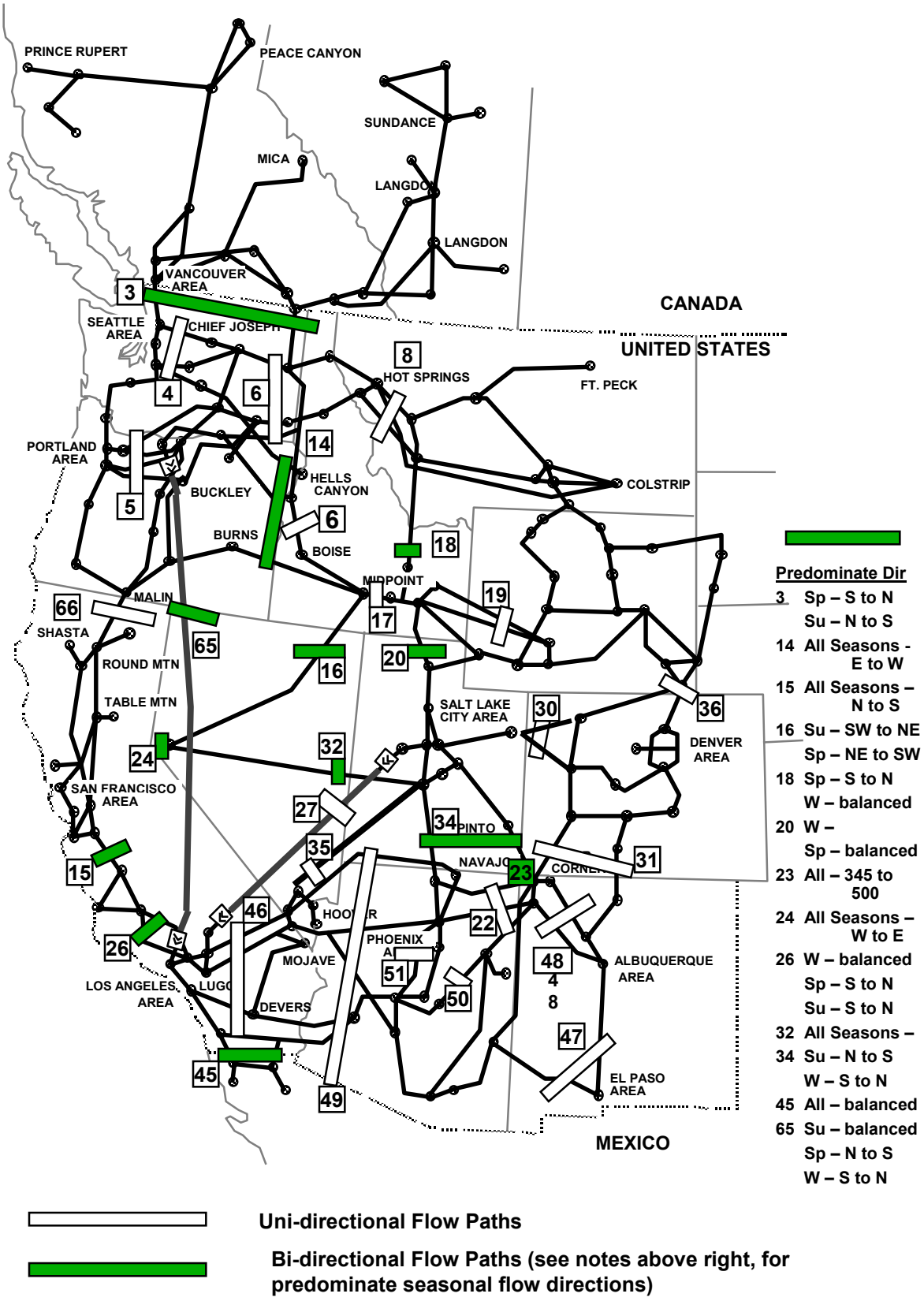
From this analysis, it cannot be concluded whether there was significant congestion (defined as the inability to obtain transmission capacity when needed) on a path nor whether there are economic benefits to increasing the transfer capability of any of the paths analyzed.

Path Loading - % of Time > 75% of Path OTC during a Seasonal Period
Maximum Seasonal Loadings for each Path
Winter 98-99 thru Spring 2002



Peak Seasonal Path Loading - Per Unit of Path OTC
Winter, Summer and Spring Seasons
Winter 98-99 thru Spring 2002




PRINCE RUPERT
PEACE CANYON
SUNDANCE
MICA
LANGDON
LANGDON
VANCOUVER AREA
CANADA
UNITED STATES
SEATTLE AREA
CHIEF JOSEPH
HOT SPRINGS
FT. PECK
PORTLAND AREA
HELLS CANYON
COLSTRIP
BUCKLEY
BURNS
BOISE
MIDPOINT
MALIN
SHASTA
ROUND MTN
TABLE MTN
SALT LAKE CITY AREA
DENVER AREA
SAN FRANCISCO AREA
PINTO
NAVAJO
HOOVER
PHOENIX AREA
MOJAVE
ALBUQUERQUE AREA
LOS ANGELES AREA
DEVERS
EL PASO AREA
MEXICO
3
4
5
6
8
14
15
16
17
18
19
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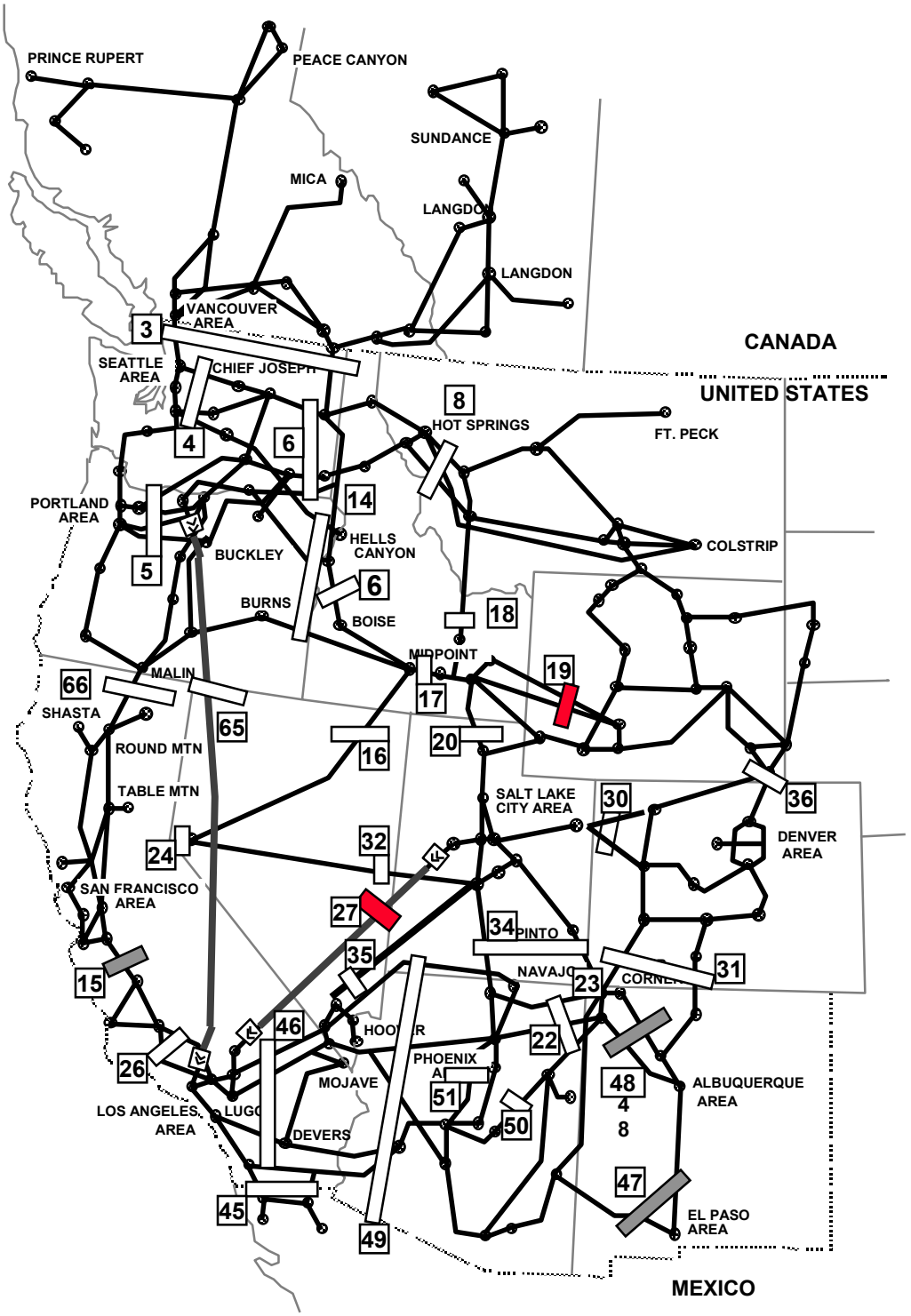
36
45
46
47
48
49
50
51
65
66
Predominate Dir
3 Sp – S to N
Su – N to S
14 All Seasons - E to W
15 All Seasons – N to S
16 Su – SW to NE
Sp – NE to SW
18 Sp – S to N
W – balanced
20 W –
Sp – balanced
23 All – 345 to 500
24 All Seasons – W to E
26 W – balanced
Sp – S to N
Su – S to N
32 All Seasons –
34 Su – N to S
W – S to N
45 All – balanced
65 Su – balanced
Sp – N to S
W – S to N
Uni-directional Flow Paths
Bi-directional Flow Paths (see notes above right, for predominate seasonal flow directions)

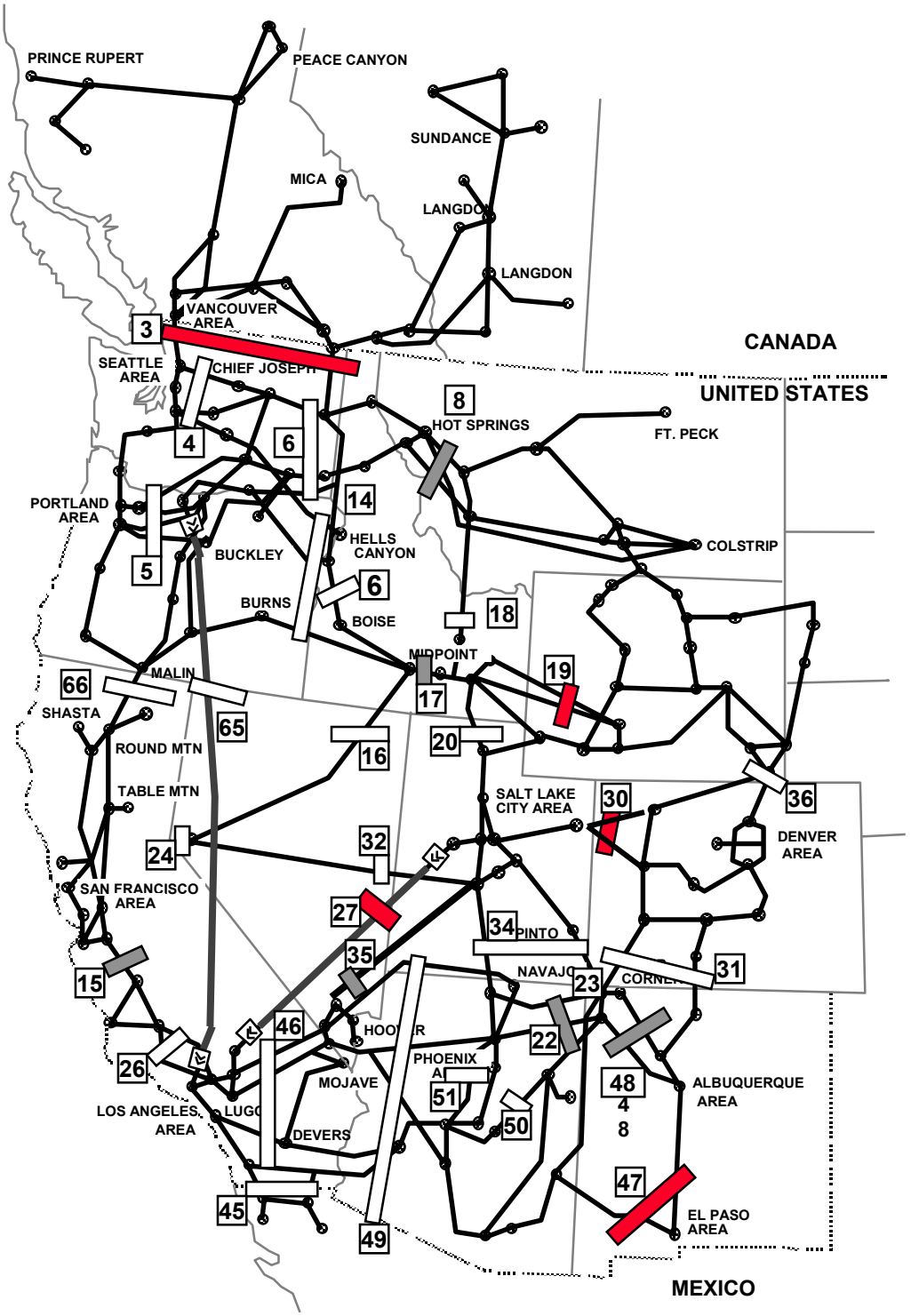


Winter 2001-02

Actual Flow > 75% of OTC greater than 50% of time

Actual Flow > 75% of OTC between 25% and 50 % of time

Actual Flow > 75% of OTC between 0% and 25% of time

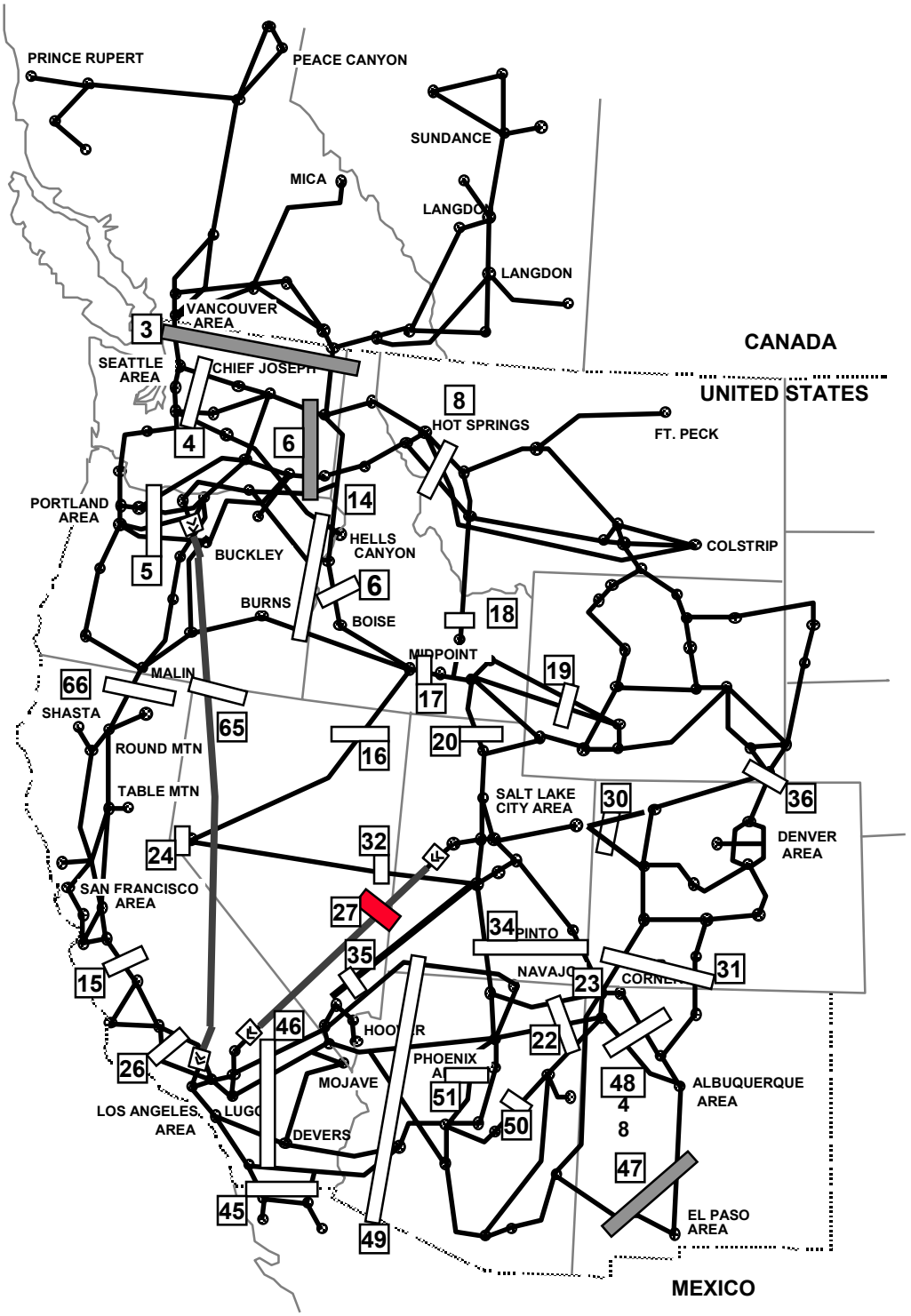


Winter 98-99 thru 01-02 (Based on Heaviest Loading Year)

Actual Flow > 75% of OTC greater than 50% of time

Actual Flow > 75% of OTC between 25% and 50 % of time

Actual Flow > 75% of OTC between 0% and 25% of time

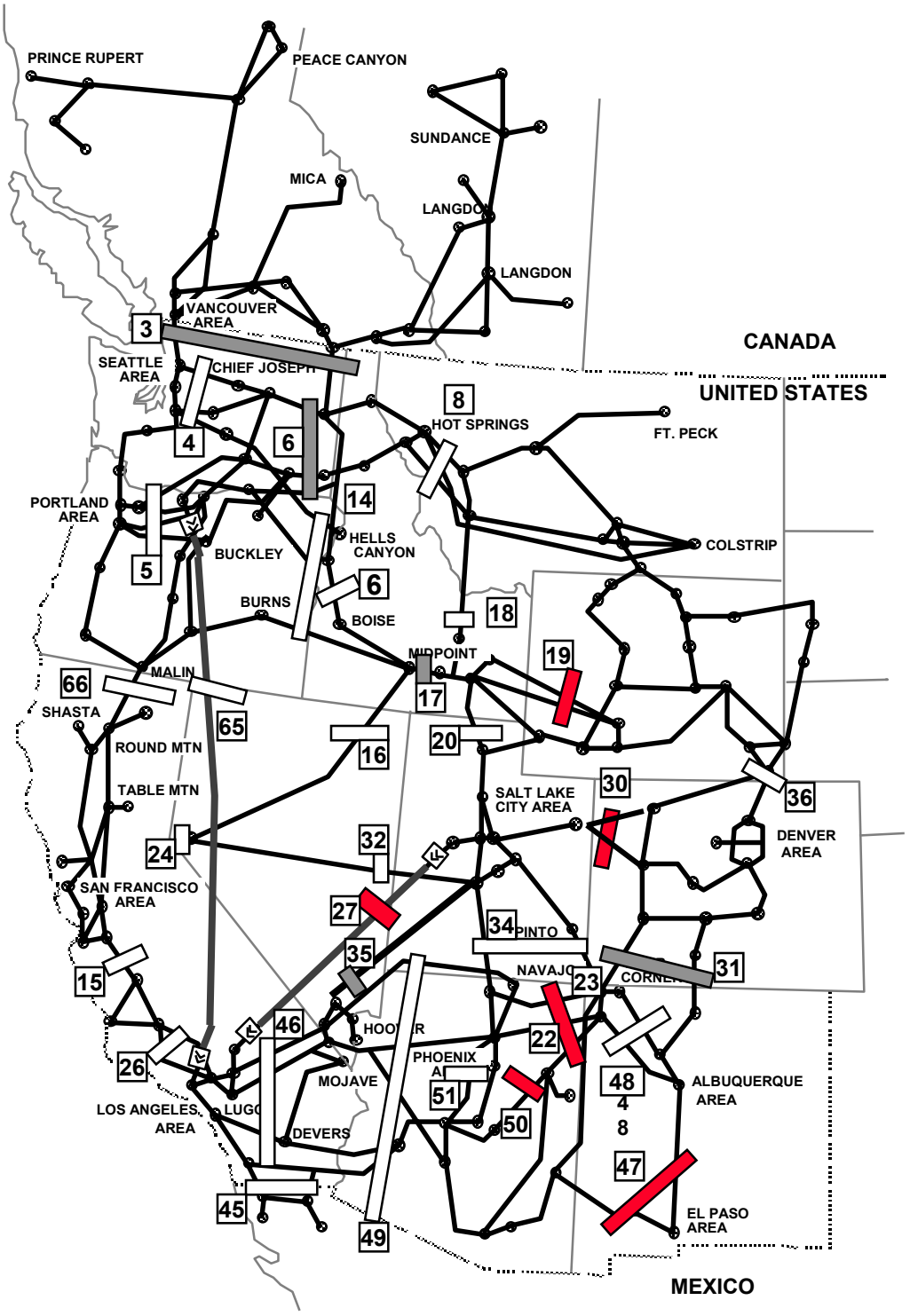


Spring 02

Actual Flow > 75% of OTC greater than 50% of time

Actual Flow > 75% of OTC between 25% and 50 % of time

Actual Flow > 75% of OTC between 0% and 25% of time

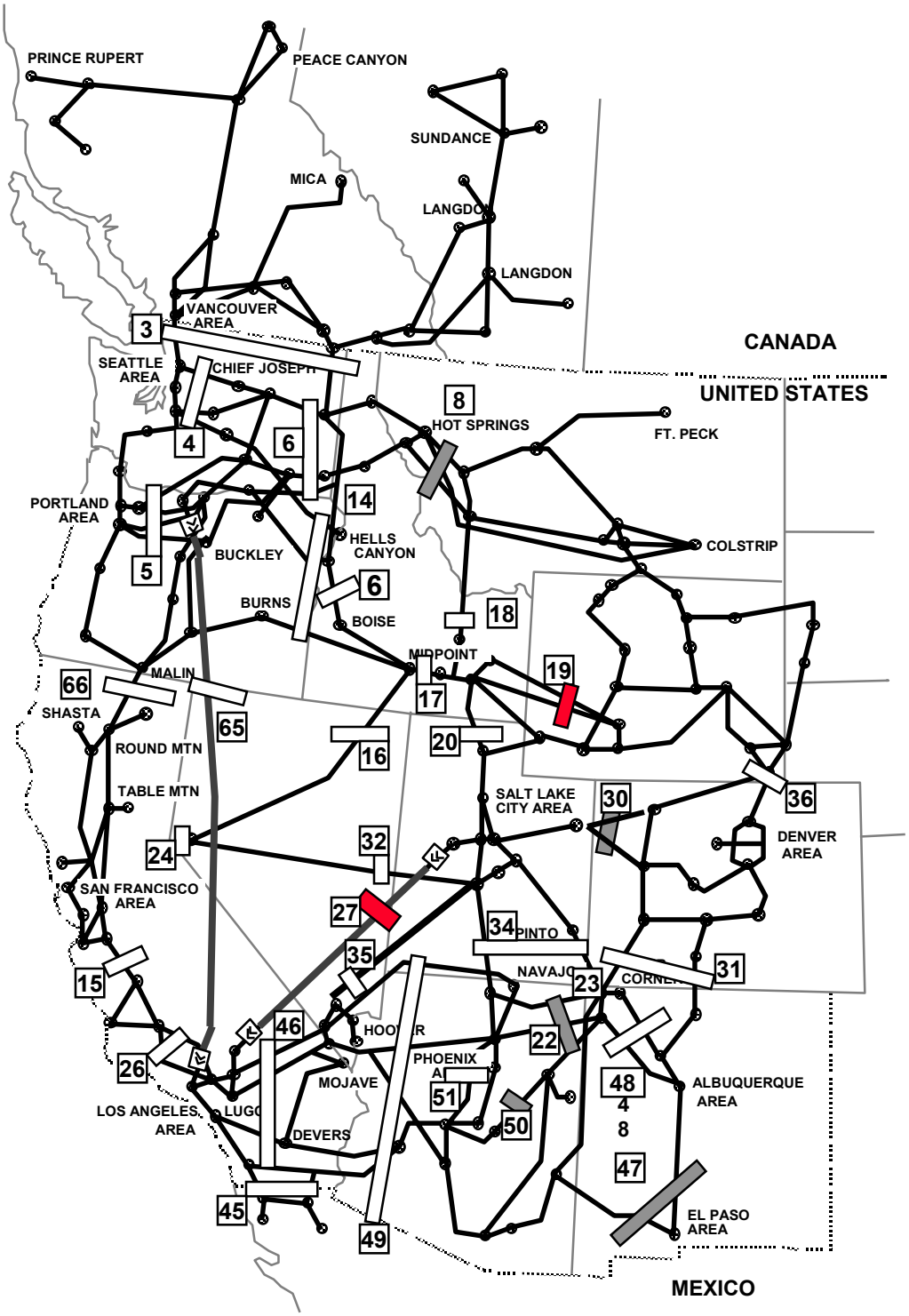


Spring 99 thru 02 (Based on Heaviest Loading Year)

Actual Flow > 75% of OTC greater than 50% of time

Actual Flow > 75% of OTC between 25% and 50 % of time

Actual Flow > 75% of OTC between 0% and 25% of time

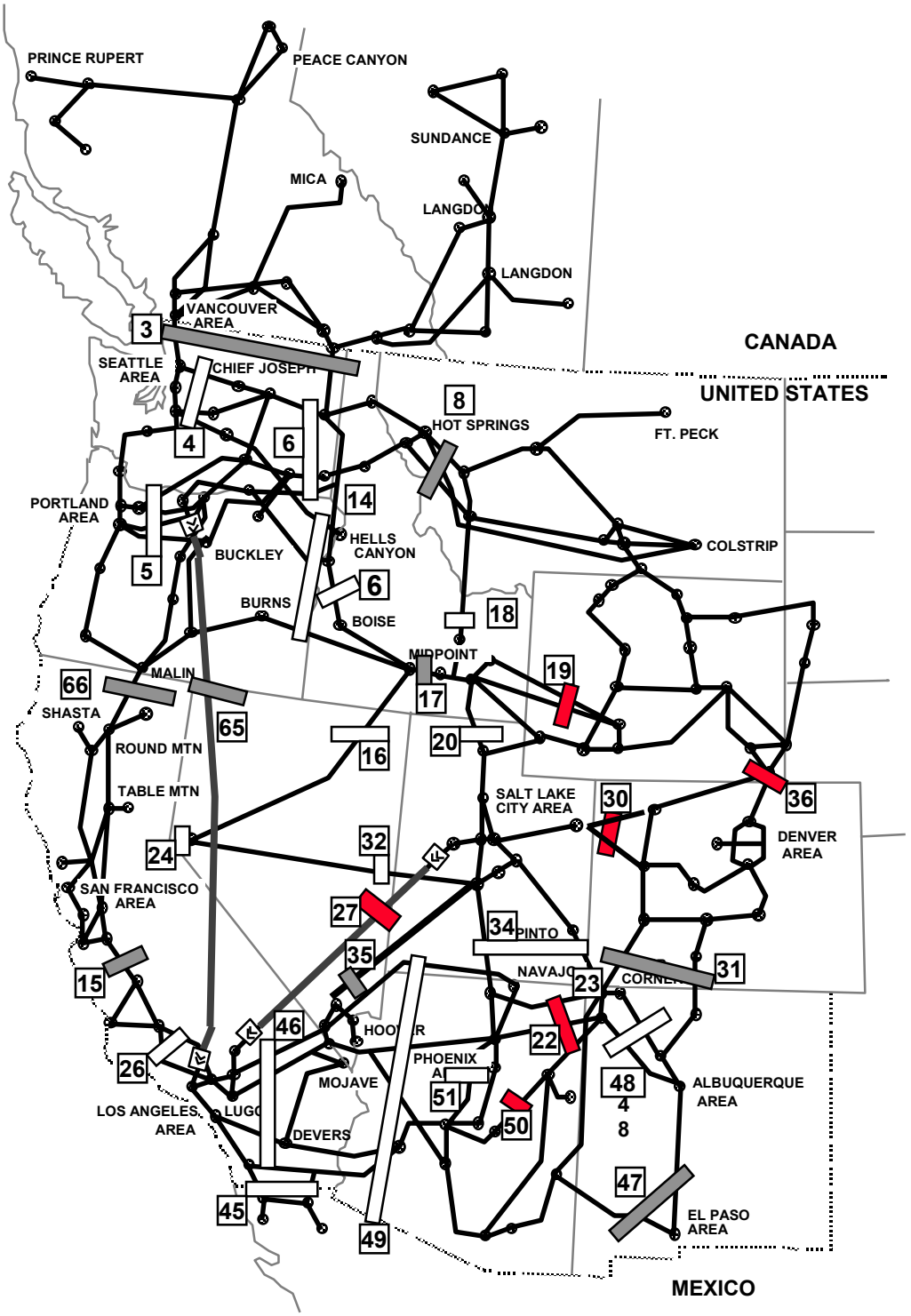


Summer 01

Actual Flow > 75% of OTC greater than 50% of time

Actual Flow > 75% of OTC between 25% and 50 % of time

Actual Flow > 75% of OTC between 0% and 25% of time

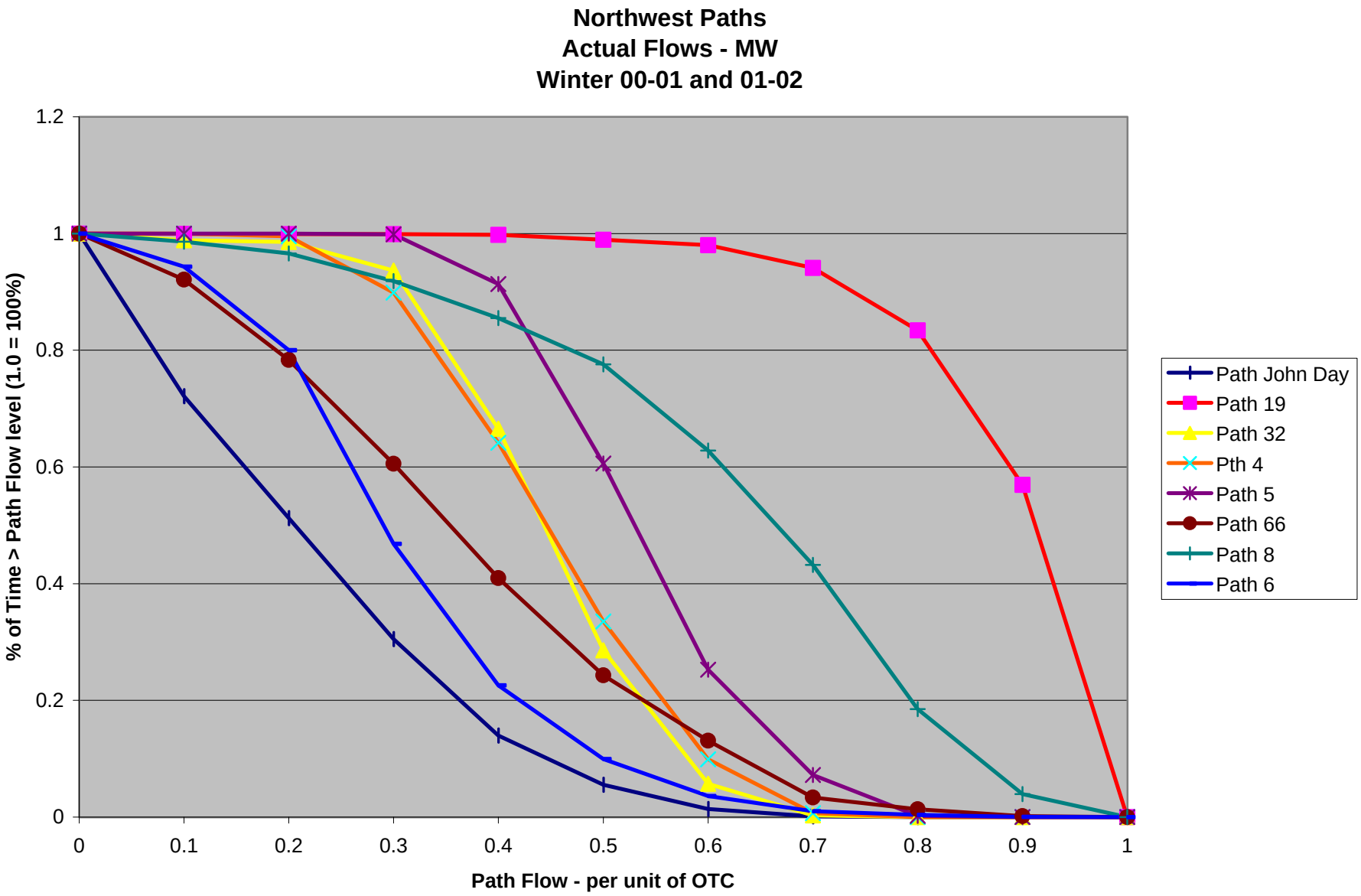


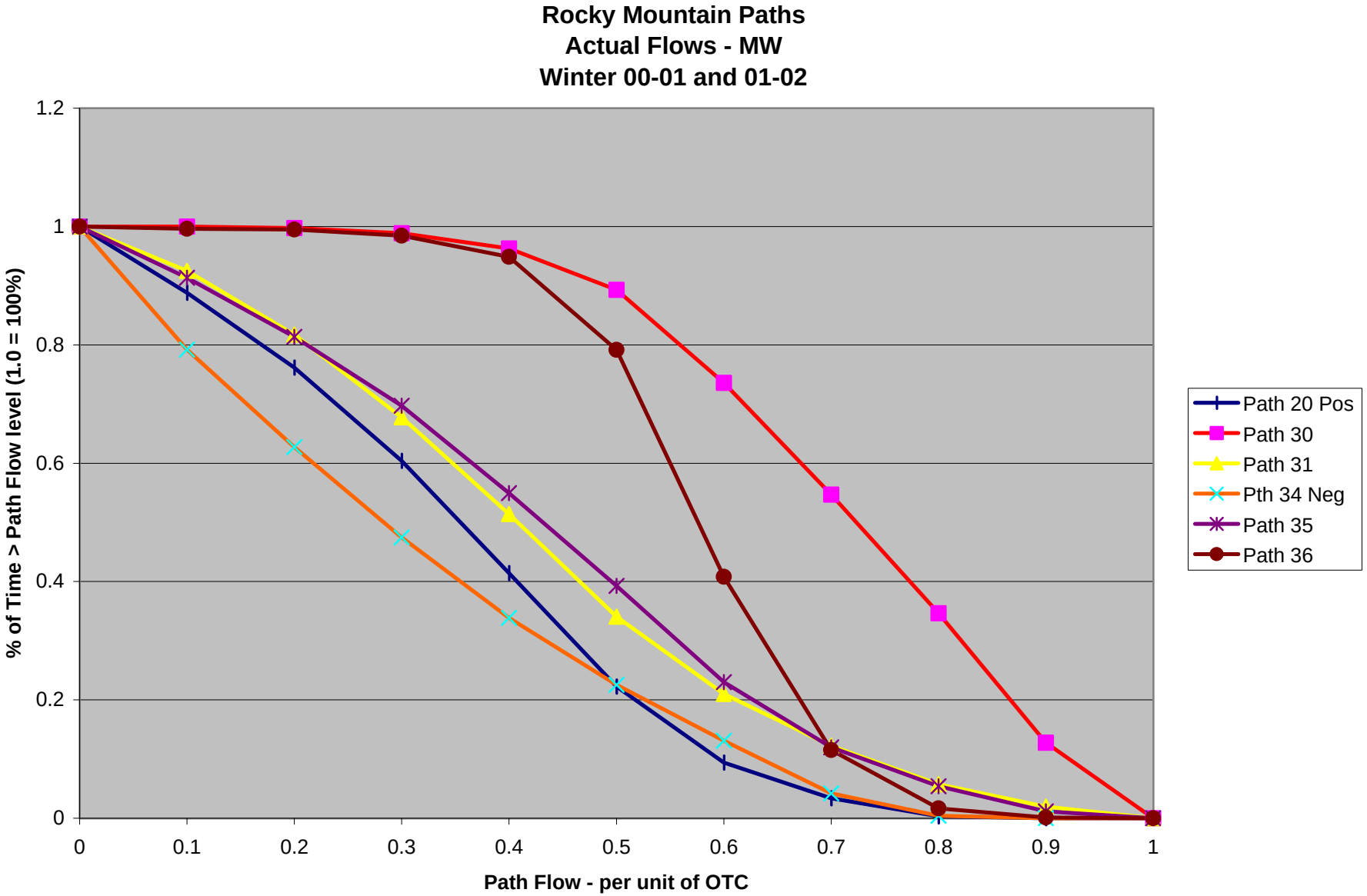
Summer 99 thru 01 (Based on Heaviest Loading Year)

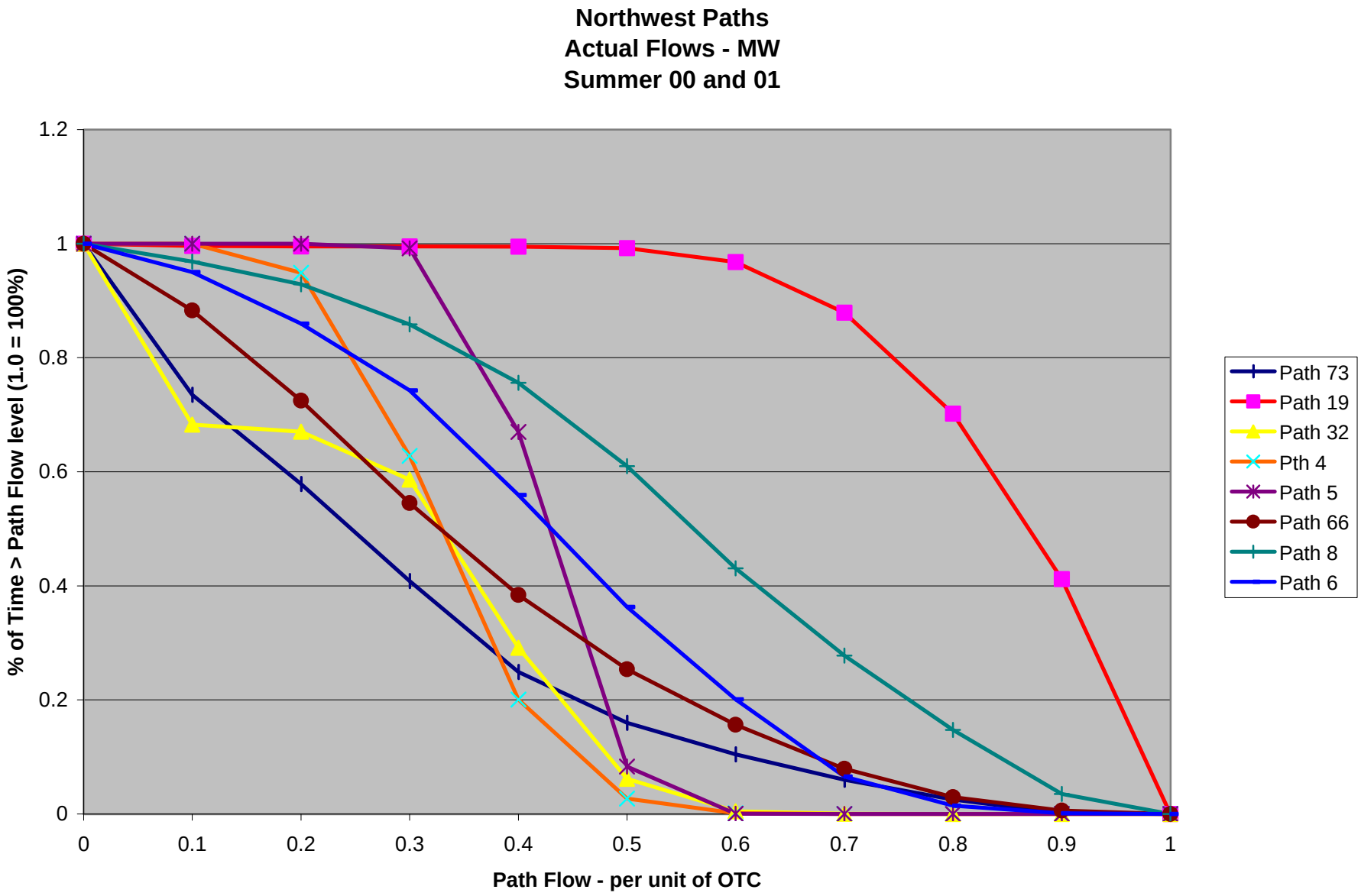
Actual Flow > 75% of OTC greater than 50% of time

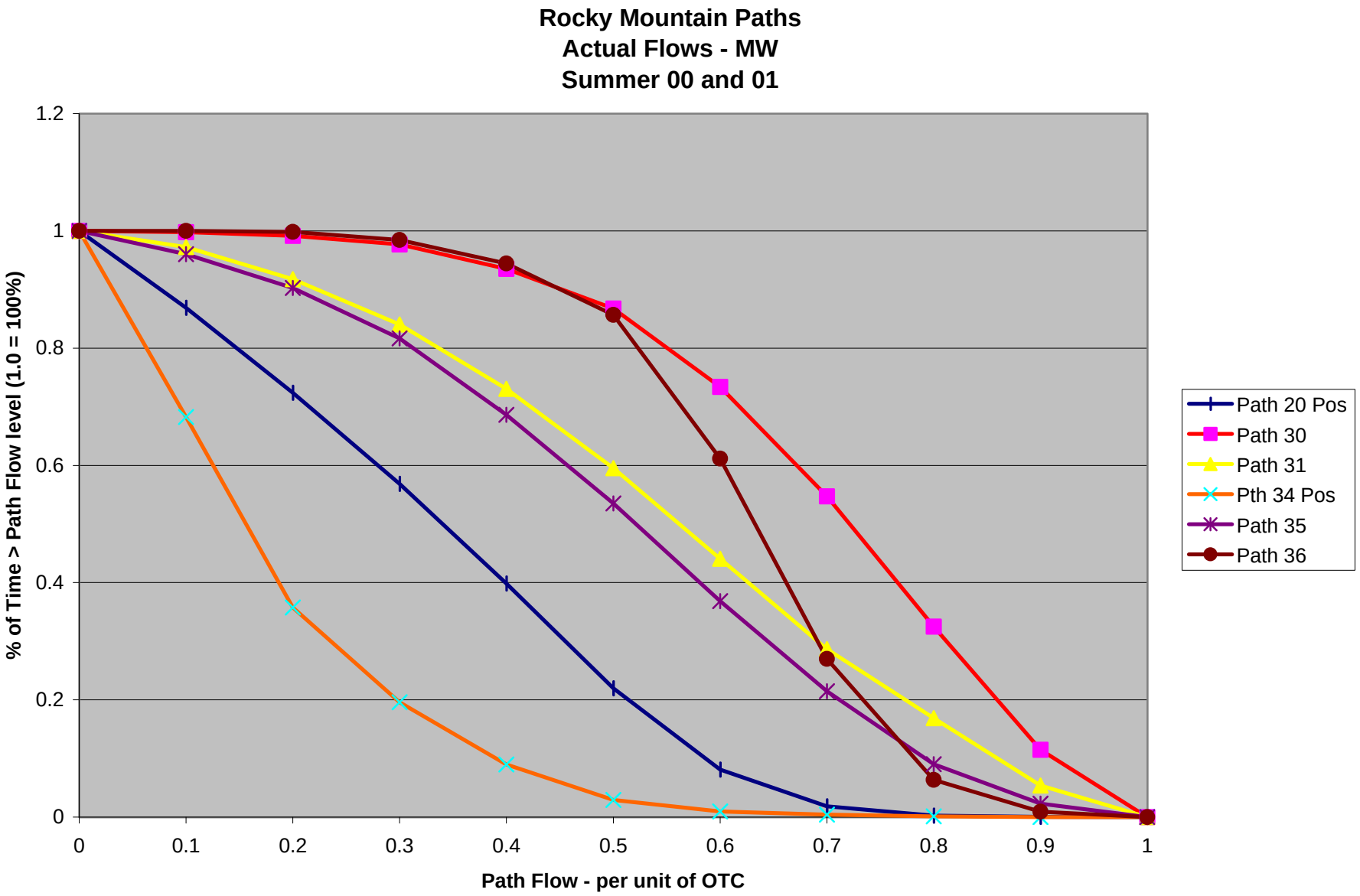
Actual Flow > 75% of OTC between 25% and 50 % of time

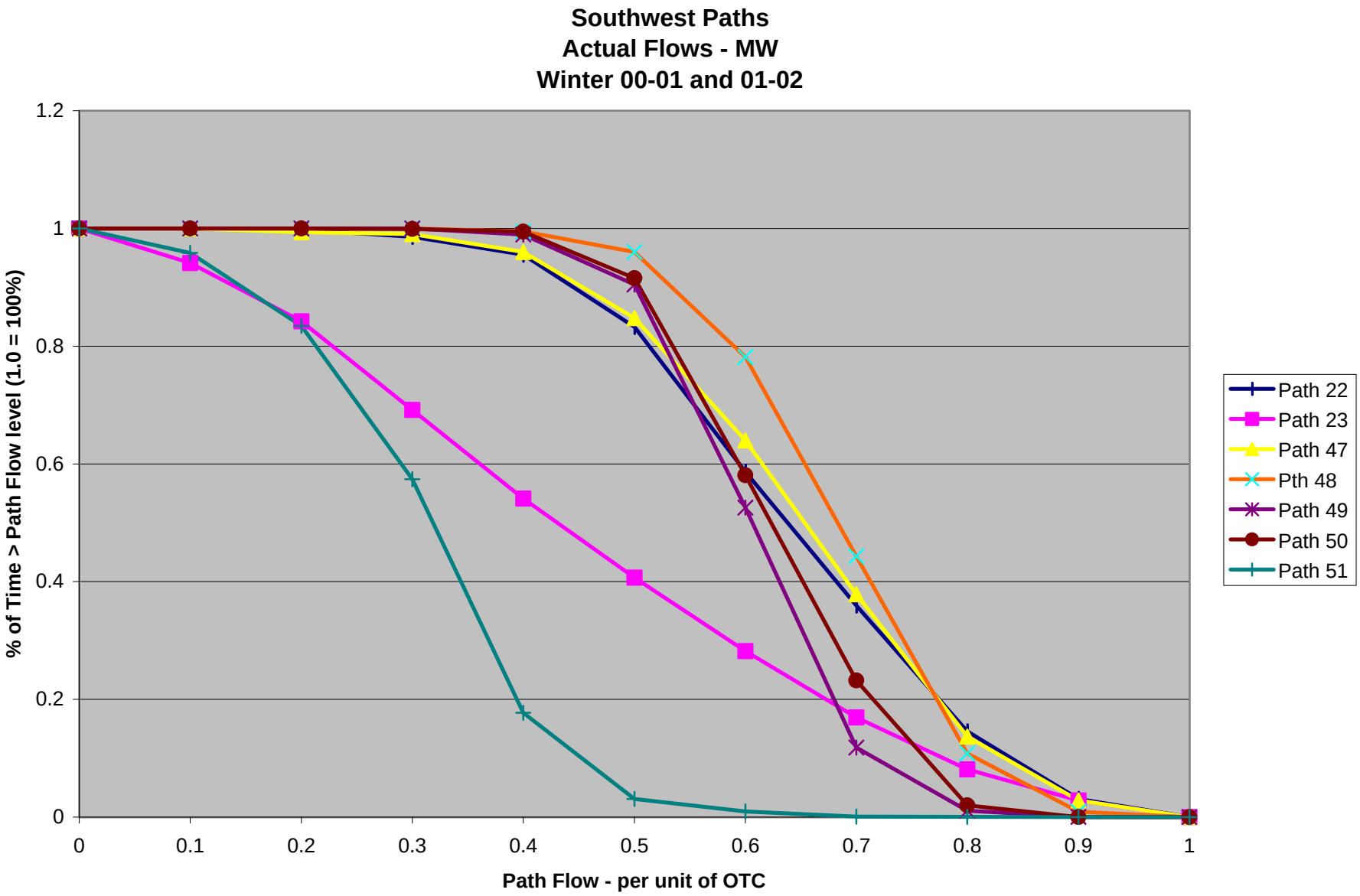
Actual Flow > 75% of OTC between 0% and 25% of time

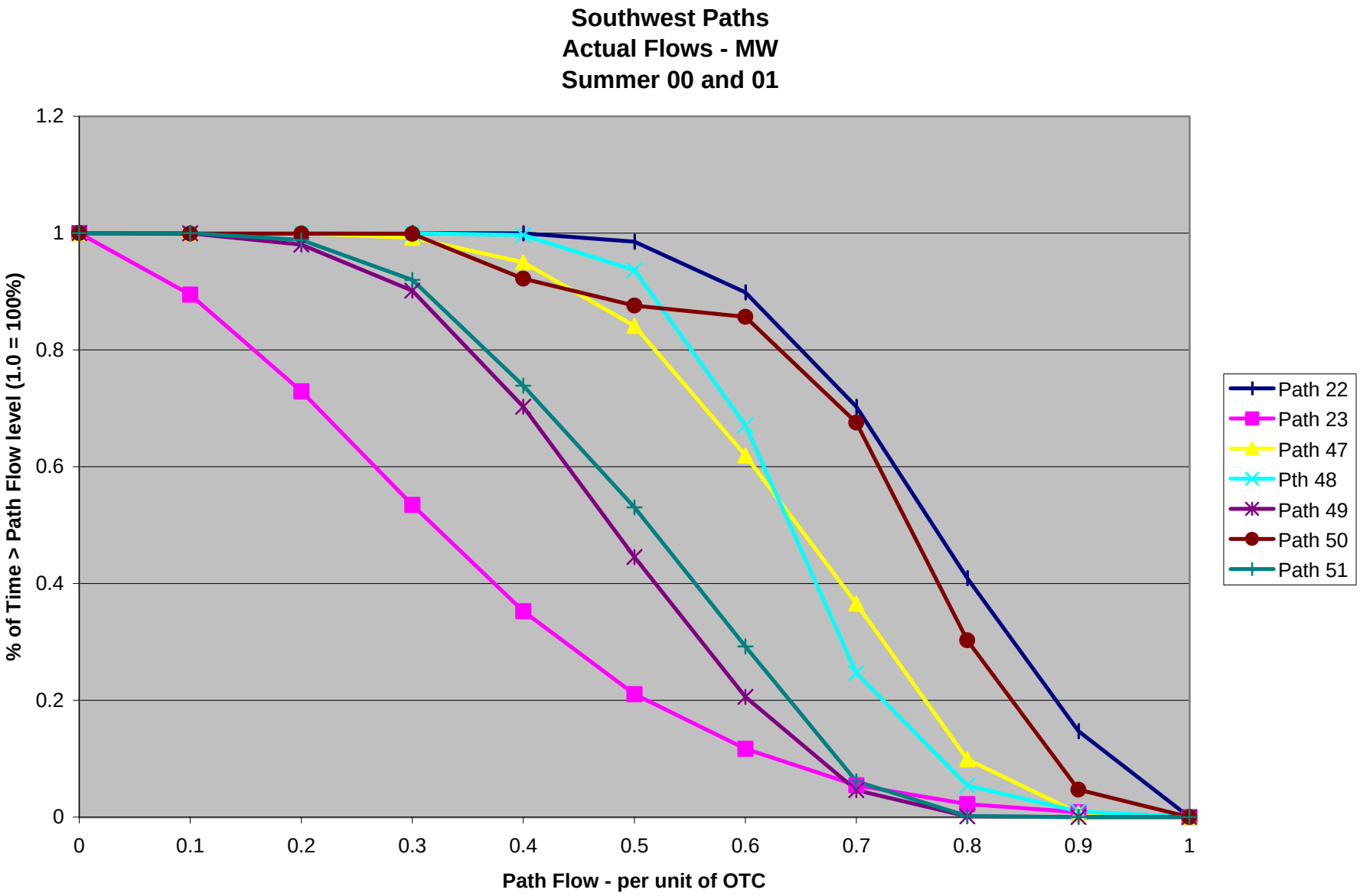

Northwest Paths
Actual Flows - MW
Winter 00-01 and 01-02
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path John Day
Path 19
Path 32
Pth 4
Path 5
Path 66
Path 8
Path 6

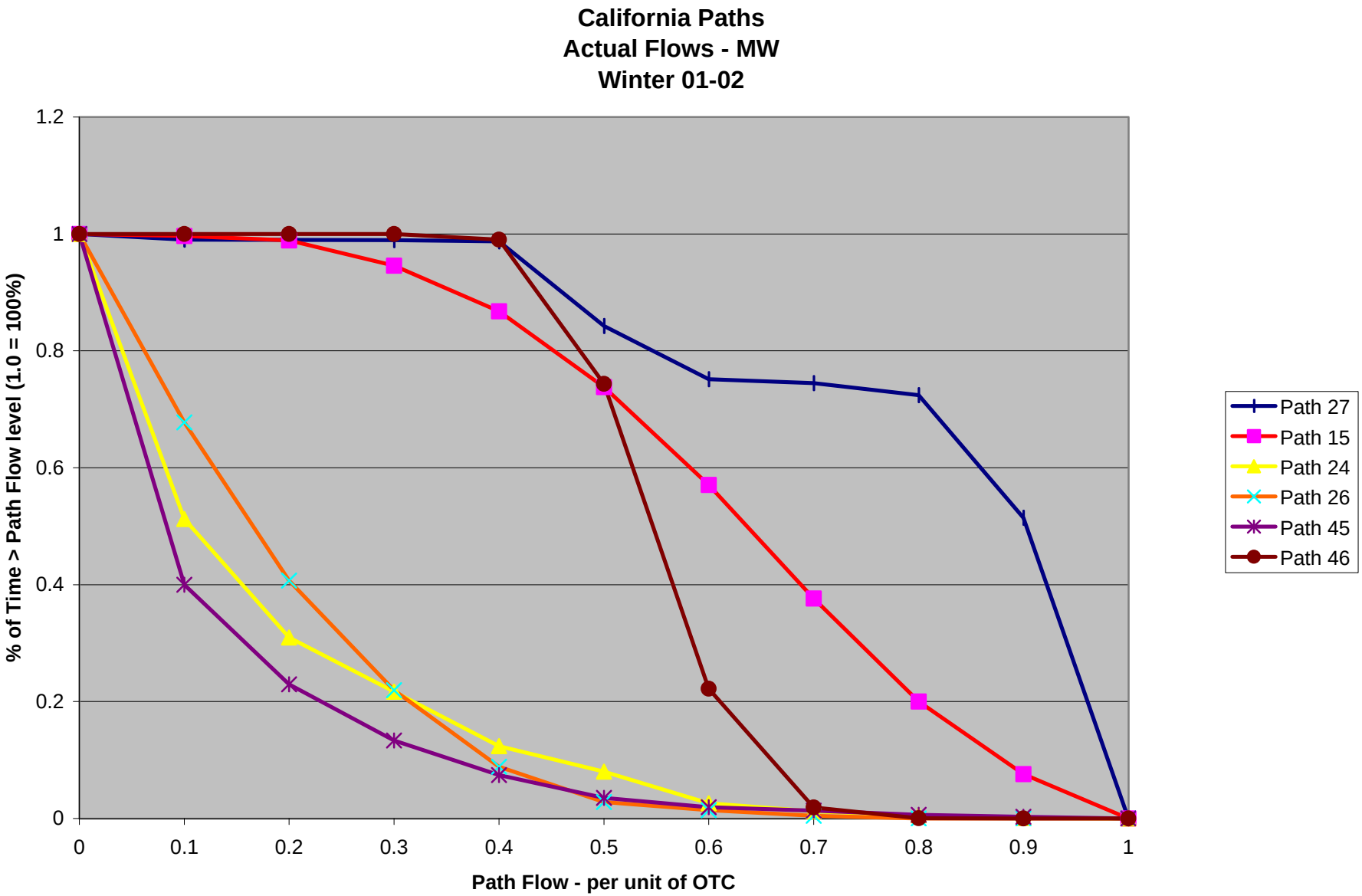

Rocky Mountain Paths
Actual Flows - MW
Winter 00-01 and 01-02
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path 20 Pos
Path 30
Path 31
Pth 34 Neg
Path 35
Path 36

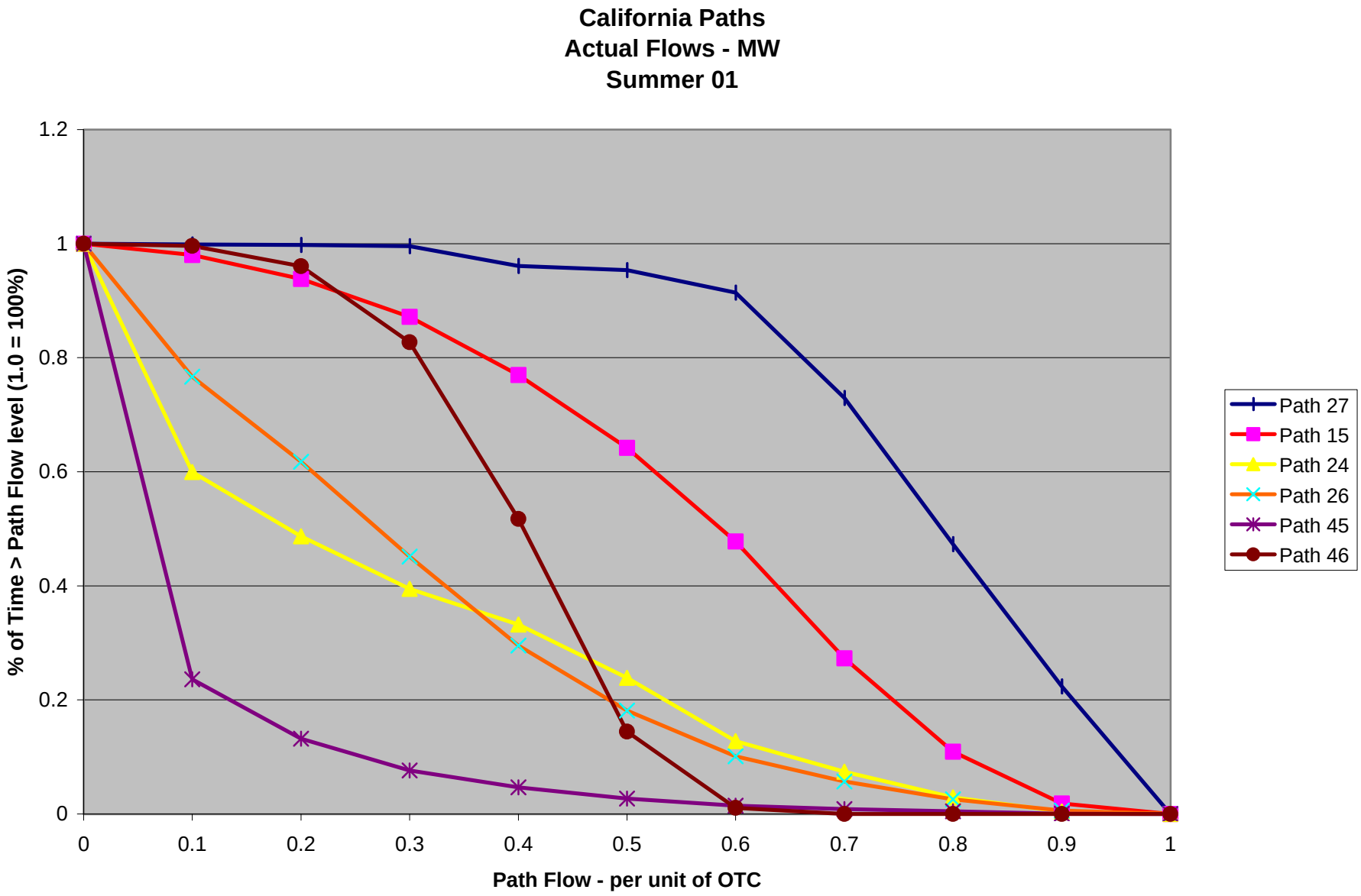

Northwest Paths
Actual Flows - MW
Summer 00 and 01
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path 73
Path 19
Path 32
Pth 4
Path 5
Path 66
Path 8
Path 6


Rocky Mountain Paths
Actual Flows - MW
Summer 00 and 01
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path 20 Pos
Path 30
Path 31
Pth 34 Pos
Path 35
Path 36

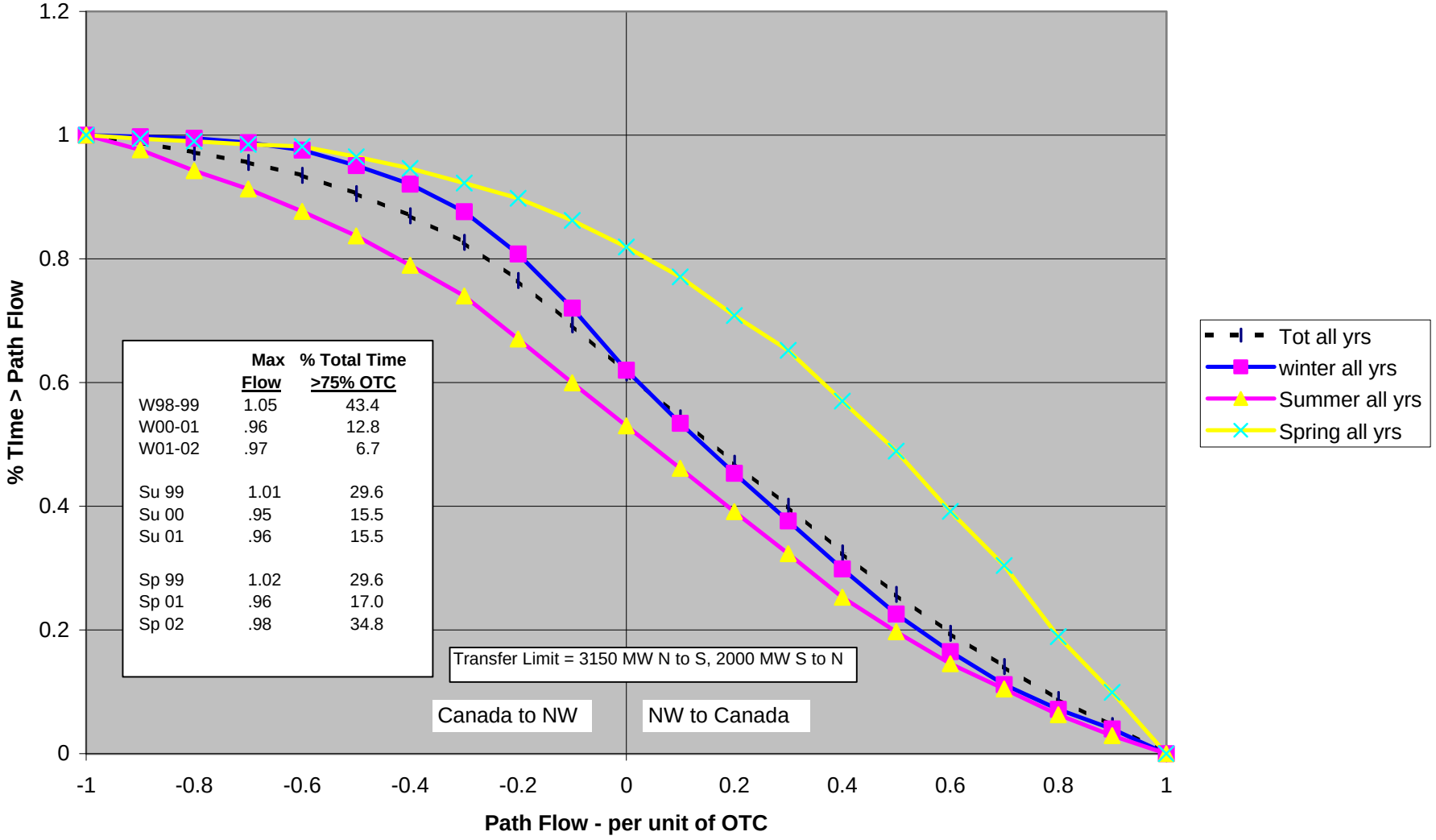

Southwest Paths
Actual Flows - MW
Winter 00-01 and 01-02
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path 22
Path 23
Path 47
Pth 48
Path 49
Path 50
Path 51


Southwest Paths
Actual Flows - MW
Summer 00 and 01
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path 22
Path 23
Path 47
Pth 48
Path 49
Path 50
Path 51


California Paths
Actual Flows - MW
Winter 01-02
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path 27
Path 15
Path 24
Path 26
Path 45
Path 46

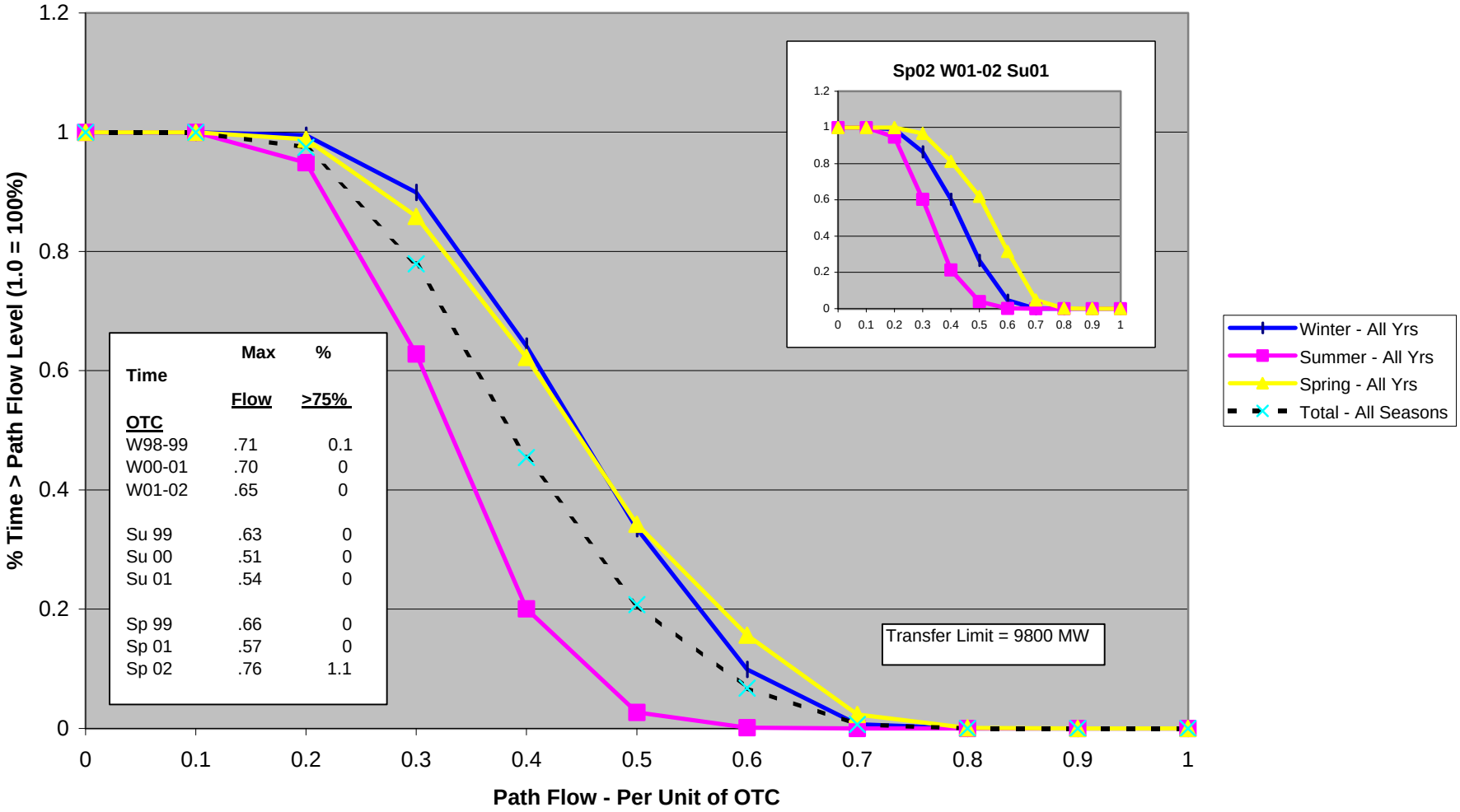

California Paths
Actual Flows - MW
Summer 01
% of Time > Path Flow level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Path Flow - per unit of OTC
Path 27
Path 15
Path 24
Path 26
Path 45
Path 46

Path 3 - Northwest to Canada
Actual Flows - MW
Winter 00-01 thru Spring 02



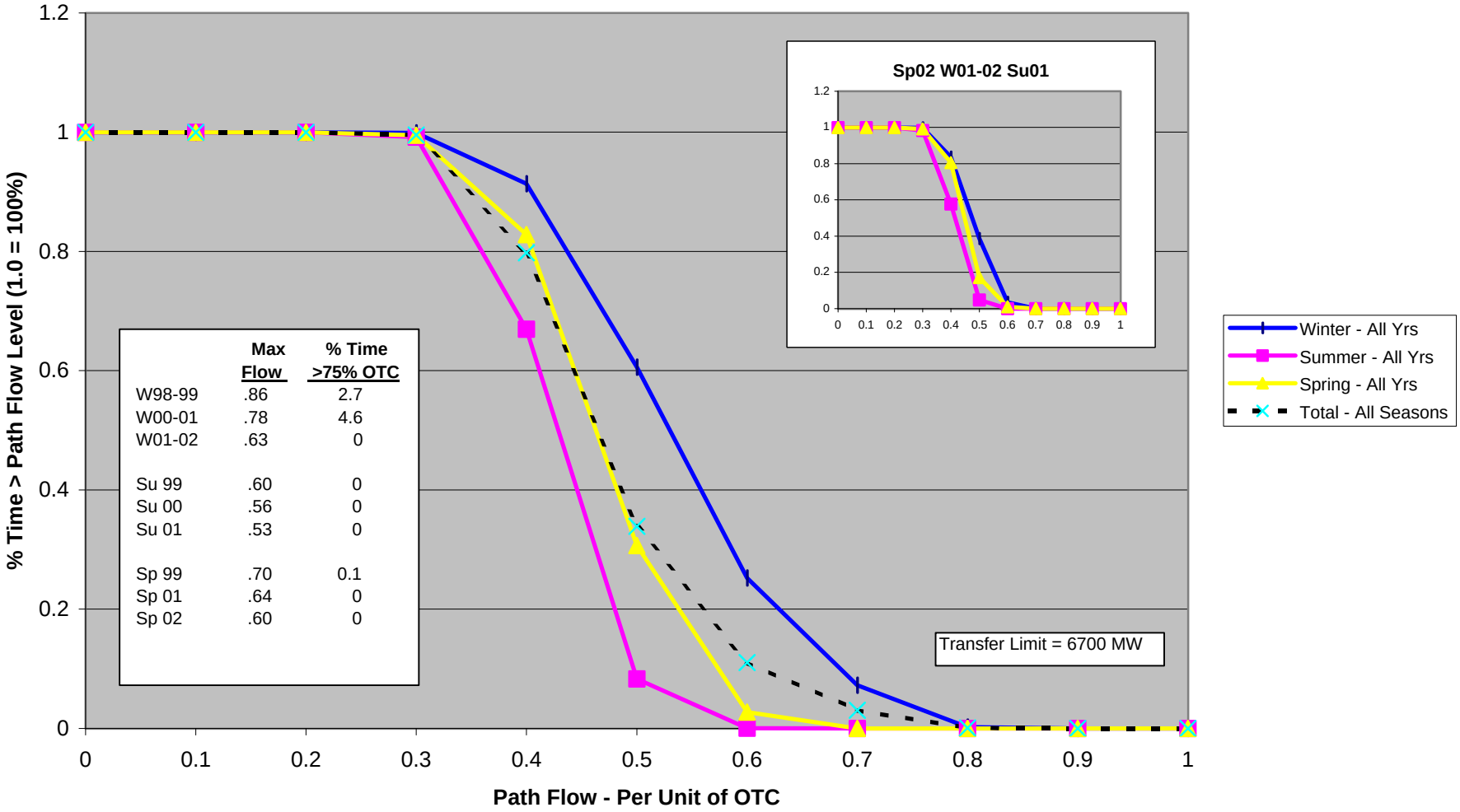
	Max Flow	% Total Time >75% OTC
W98-99	1.05	43.4
W00-01	.96	12.8
W01-02	.97	6.7
Su 99	1.01	29.6
Su 00	.95	15.5
Su 01	.96	15.5
Sp 99	1.02	29.6
Sp 01	.96	17.0
Sp 02	.98	34.8

Path 4 West of Cascades - North
Actual MW Flow
Winter 00-01 thru Spring 02



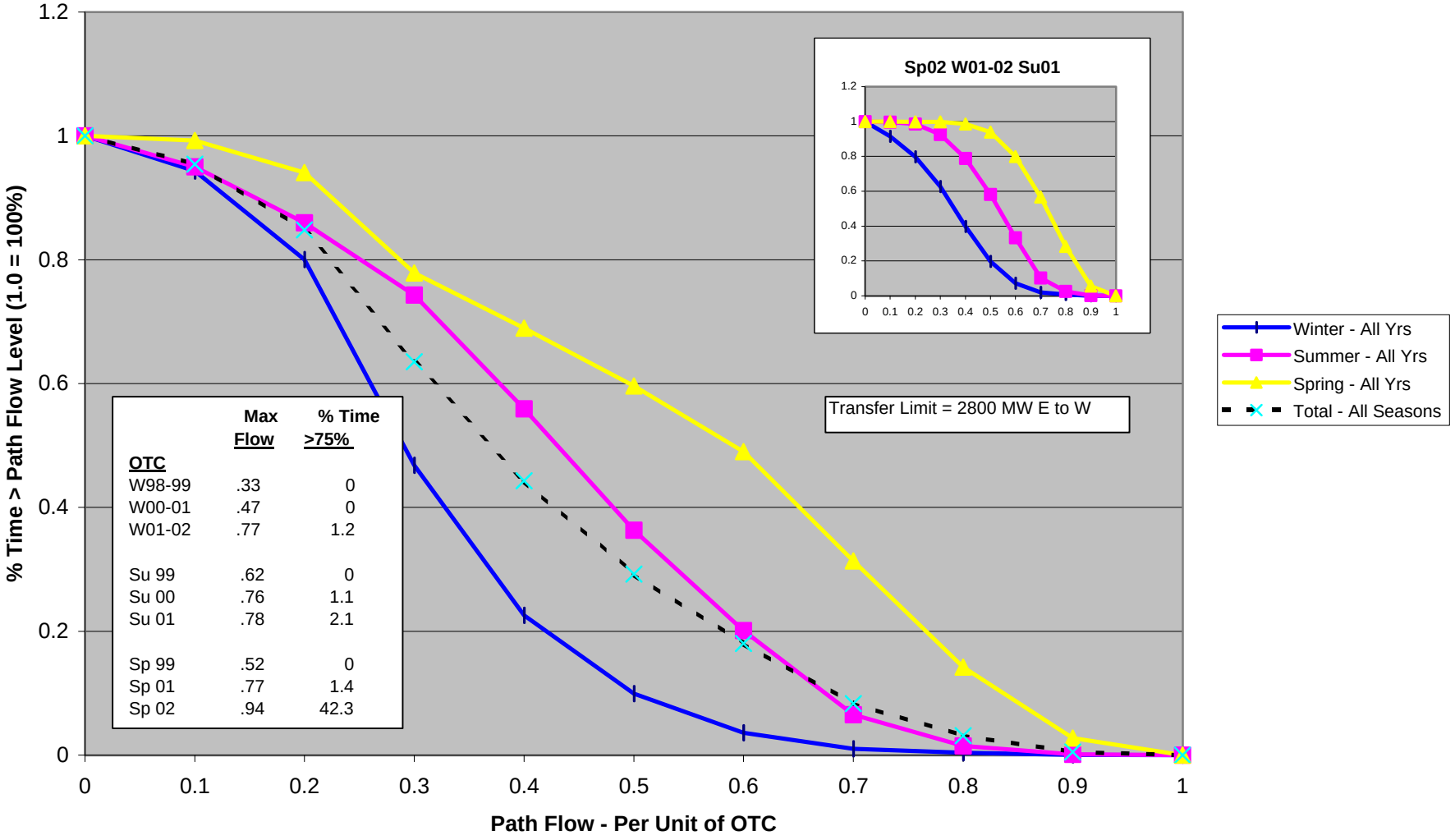
Time	Max Flow	% >75%
OTC		
W98-99	.71	0.1
W00-01	.70	0
W01-02	.65	0
Su 99	.63	0
Su 00	.51	0
Su 01	.54	0
Sp 99	.66	0
Sp 01	.57	0
Sp 02	.76	1.1

Path 5 West of Cascades - South
Actual MW Flow
Winter 00-01 thru Spring 02



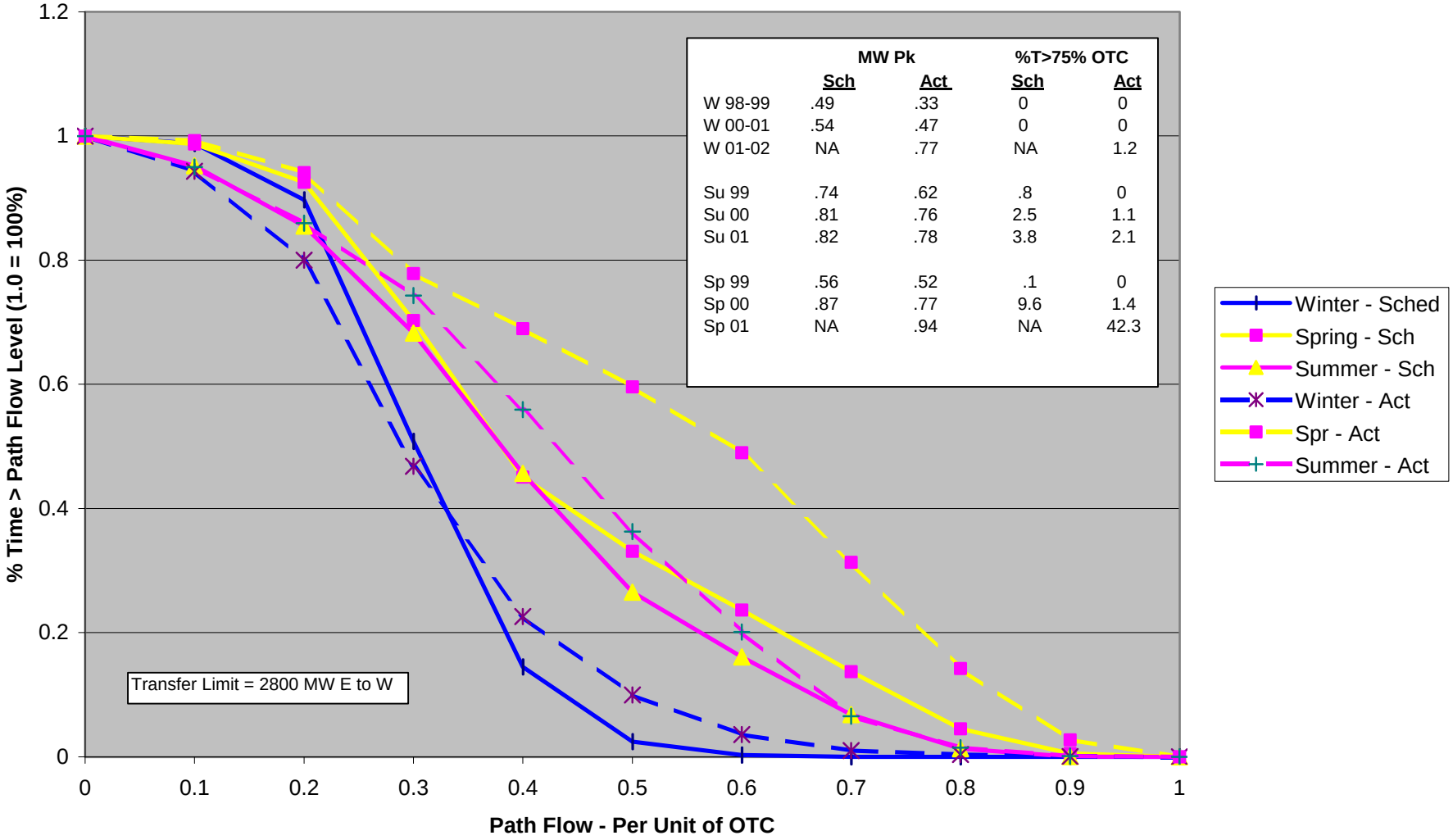
	Max Flow	% Time >75% OTC
W98-99	.86	2.7
W00-01	.78	4.6
W01-02	.63	0
Su 99	.60	0
Su 00	.56	0
Su 01	.53	0
Sp 99	.70	0.1
Sp 01	.64	0
Sp 02	.60	0

Path 6 West of Hatwai
Actual MW Flow
Winter 00-01 thru Spring 02



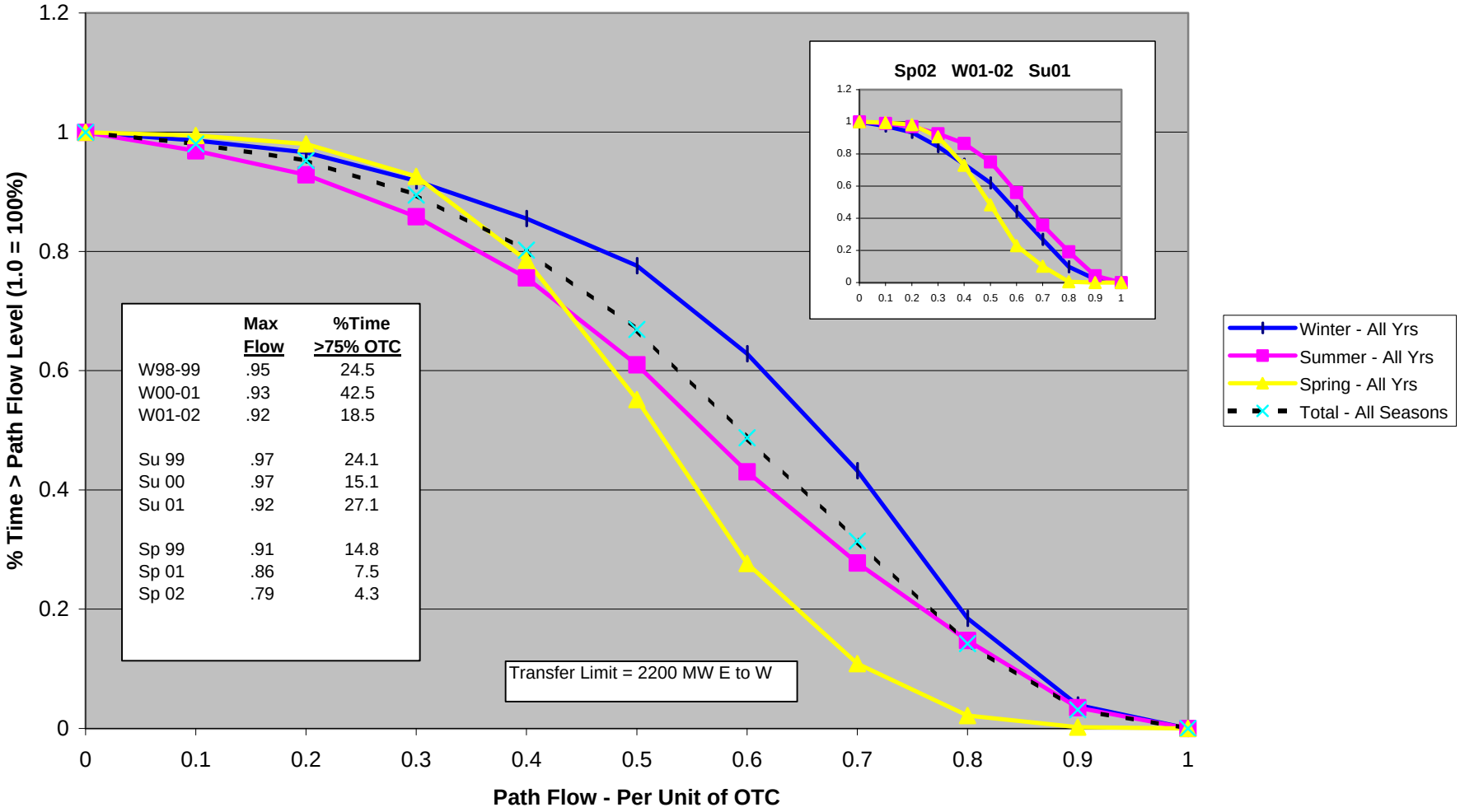
OTC	Max Flow	% Time >75%
W98-99	.33	0
W00-01	.47	0
W01-02	.77	1.2
Su 99	.62	0
Su 00	.76	1.1
Su 01	.78	2.1
Sp 99	.52	0
Sp 01	.77	1.4
Sp 02	.94	42.3

Path 6 West of Hatwai
Actual and Scheduled Flow

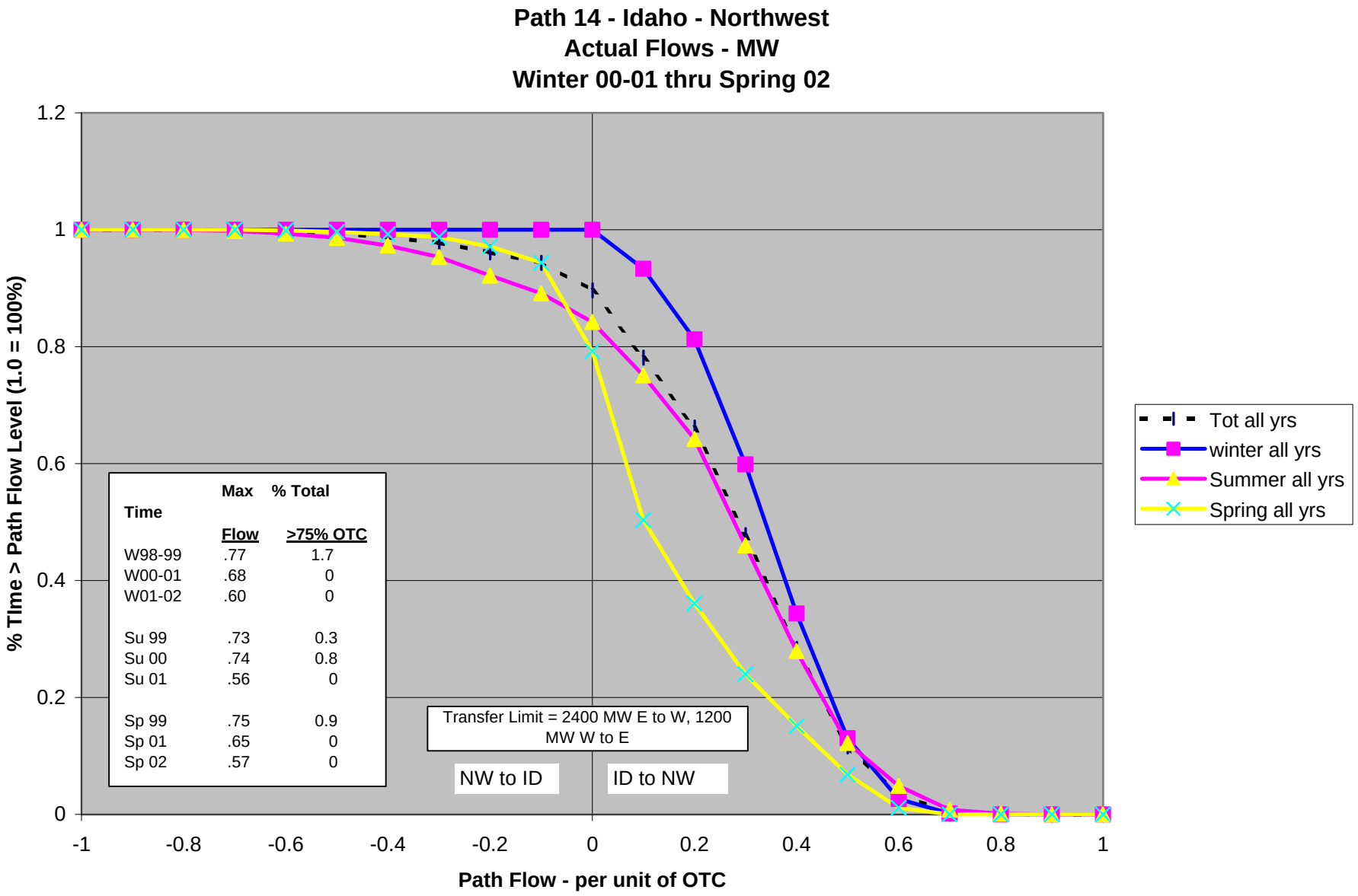


	MW Pk		%T>75% OTC	
	Sch	Act	Sch	Act
W 98-99	.49	.33	0	0
W 00-01	.54	.47	0	0
W 01-02	NA	.77	NA	1.2
Su 99	.74	.62	.8	0
Su 00	.81	.76	2.5	1.1
Su 01	.82	.78	3.8	2.1
Sp 99	.56	.52	.1	0
Sp 00	.87	.77	9.6	1.4
Sp 01	NA	.94	NA	42.3

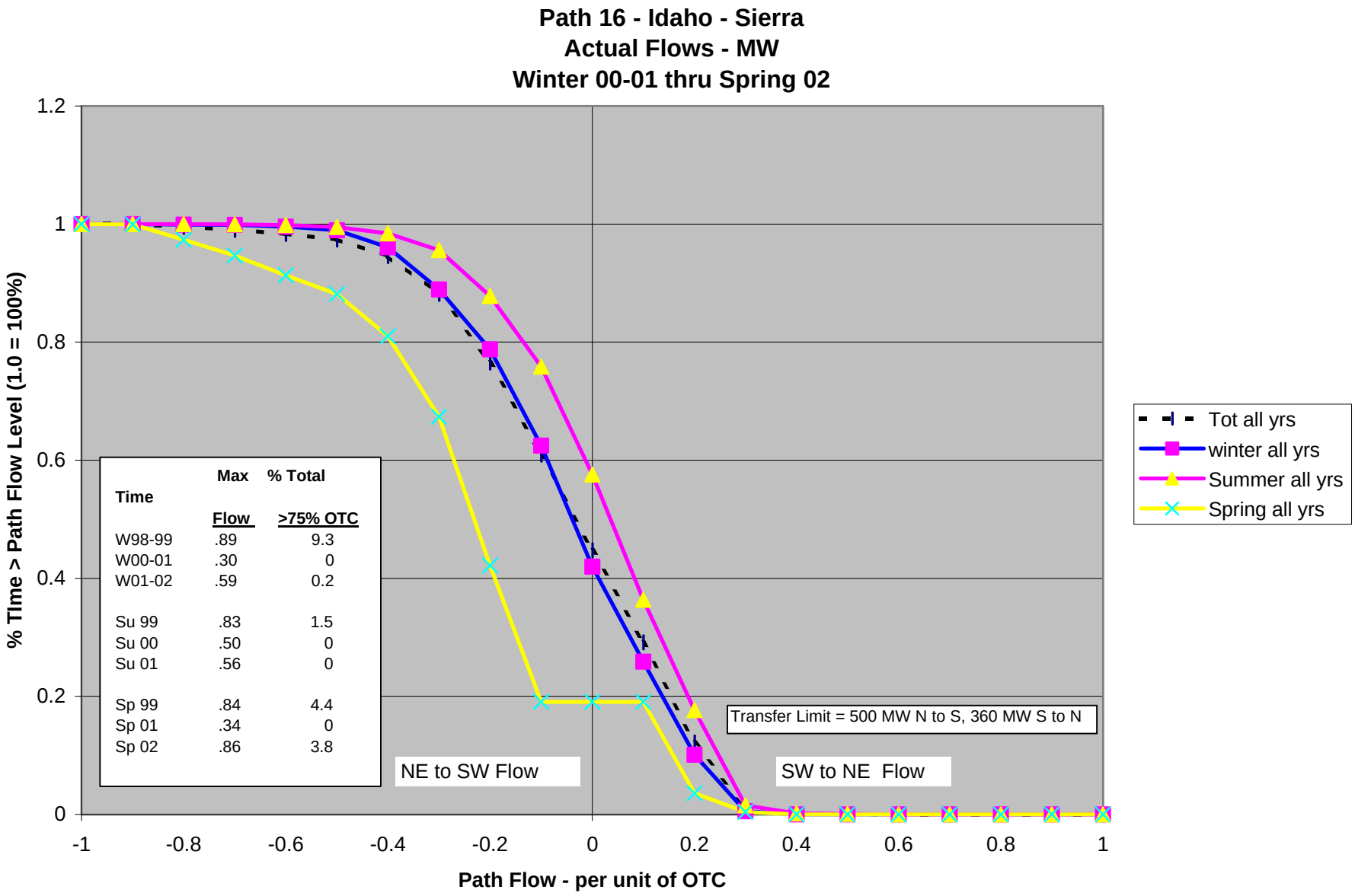
Path 8 - Montana to Northwest
Actual MW Flow
Winter 00-01 thru Spring 02



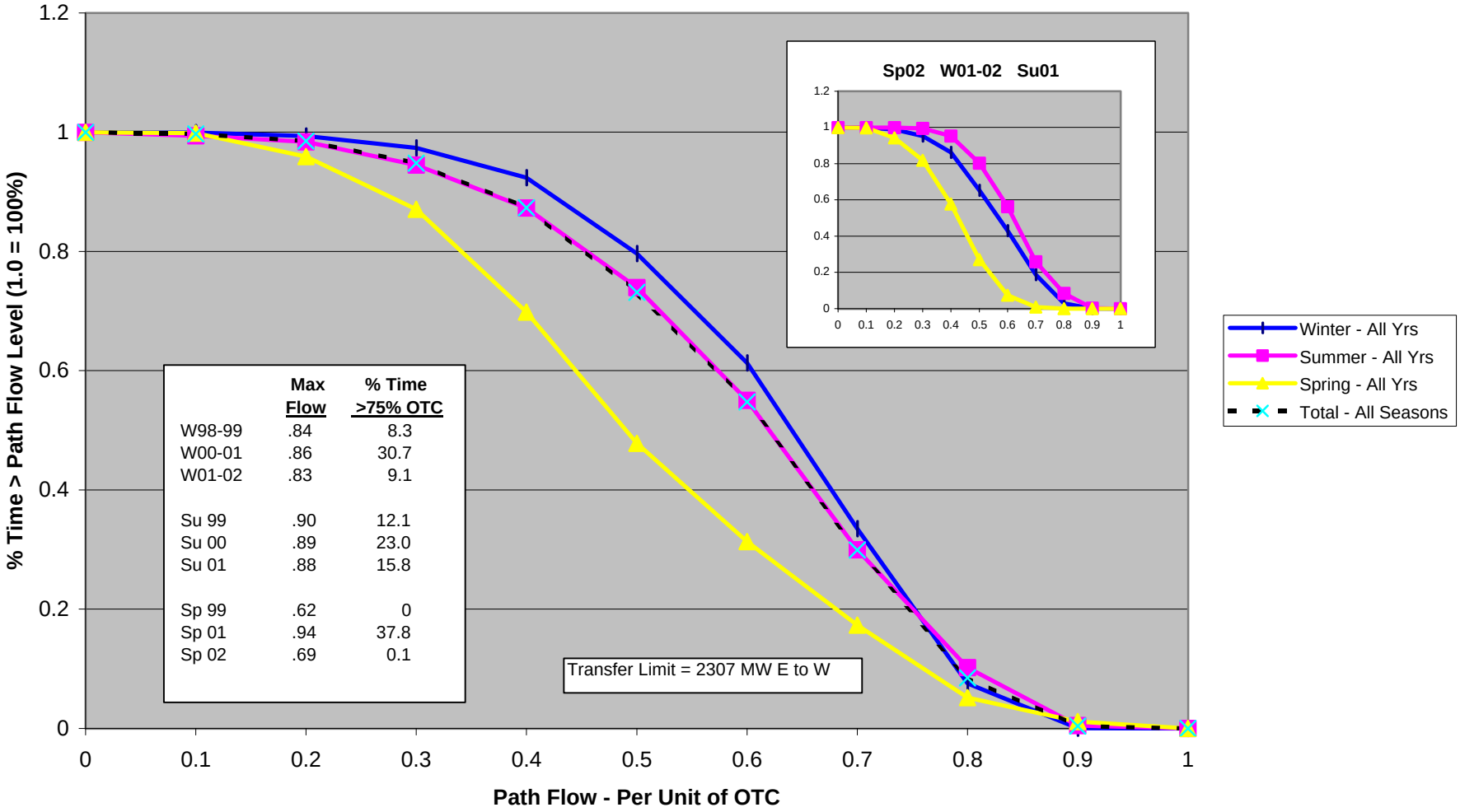
	Max Flow	%Time >75% OTC
W98-99	.95	24.5
W00-01	.93	42.5
W01-02	.92	18.5
Su 99	.97	24.1
Su 00	.97	15.1
Su 01	.92	27.1
Sp 99	.91	14.8
Sp 01	.86	7.5
Sp 02	.79	4.3



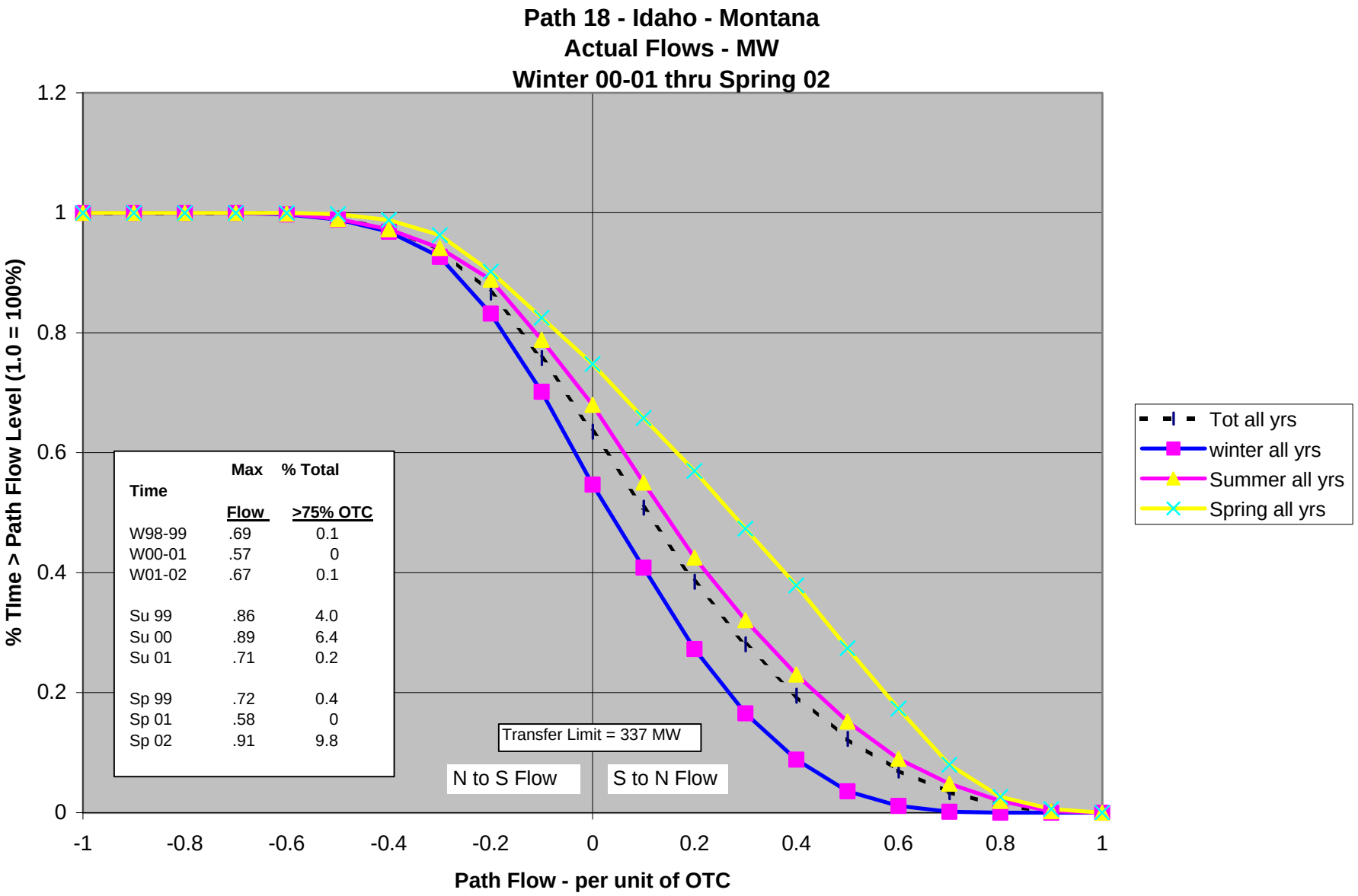
Time	Max Flow	% Total >75% OTC
W98-99	.77	1.7
W00-01	.68	0
W01-02	.60	0
Su 99	.73	0.3
Su 00	.74	0.8
Su 01	.56	0
Sp 99	.75	0.9
Sp 01	.65	0
Sp 02	.57	0


Path 16 - Idaho - Sierra
Actual Flows - MW
Winter 00-01 thru Spring 02
% TIme > Path Flow Level (1.0 = 100%)
Path Flow - per unit of OTC
1.2
1
0.8
0.6
0.4
0.2
0
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
Tot all yrs
winter all yrs
Summer all yrs
Spring all yrs
Transfer Limit = 500 MW N to S, 360 MW S to N
NE to SW Flow
SW to NE Flow
Time
Max Flow
% Total >75% OTC
W98-99 .89 9.3
W00-01 .30 0
W01-02 .59 0.2
Su 99 .83 1.5
Su 00 .50 0
Su 01 .56 0
Sp 99 .84 4.4
Sp 01 .34 0
Sp 02 .86 3.8

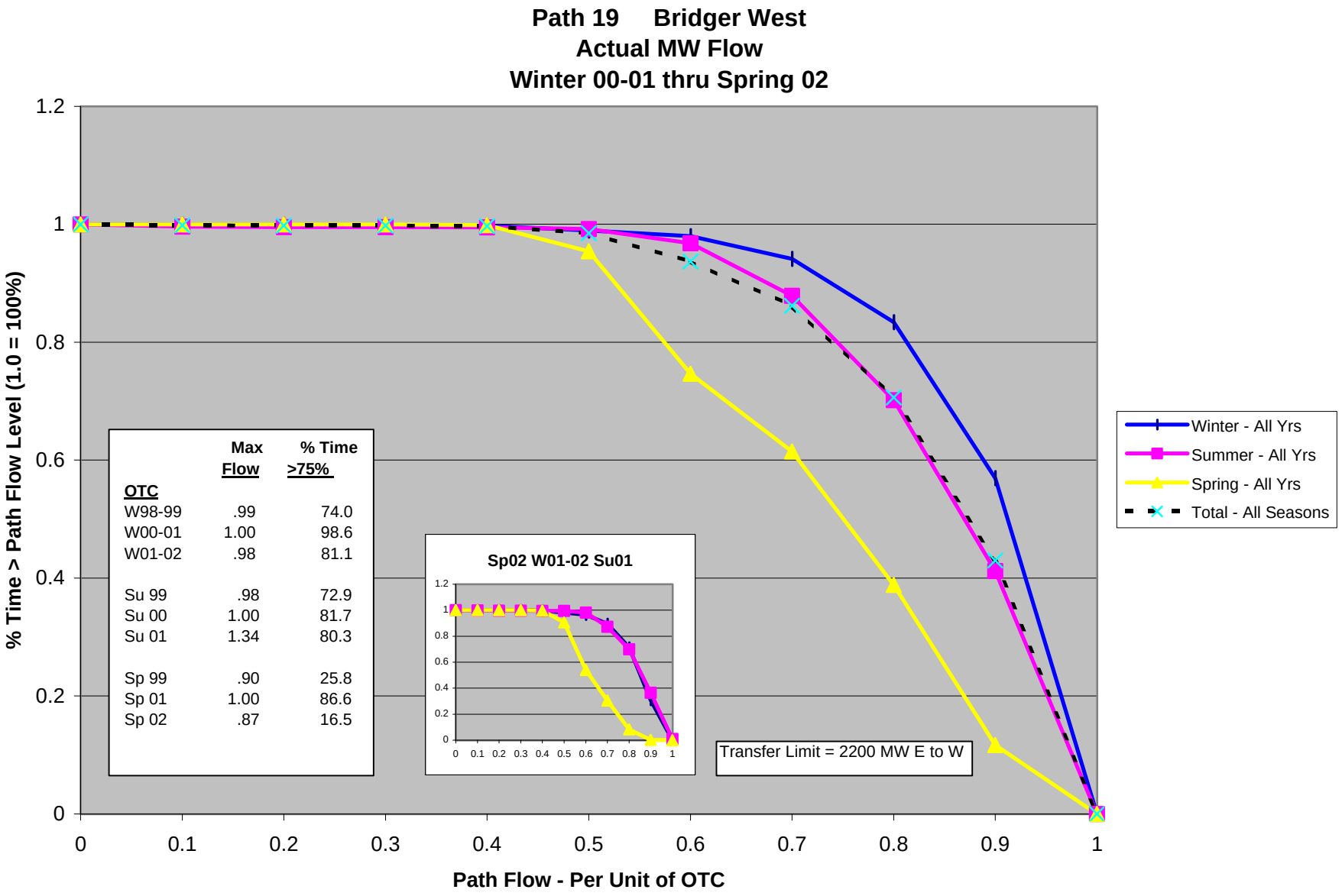
Path 17 - Borah West
Actual MW Flow
Winter 00-01 thru Spring 02

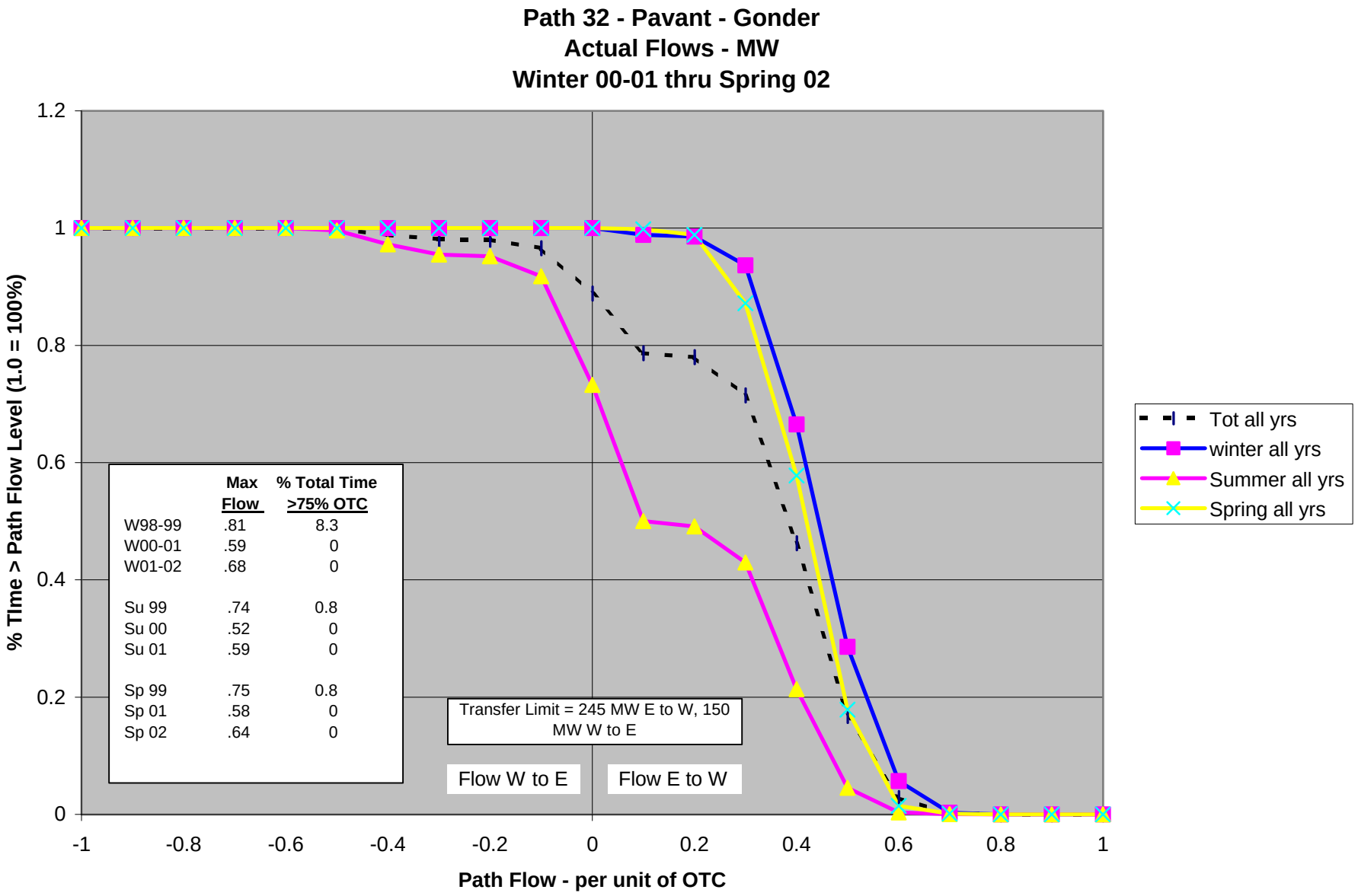


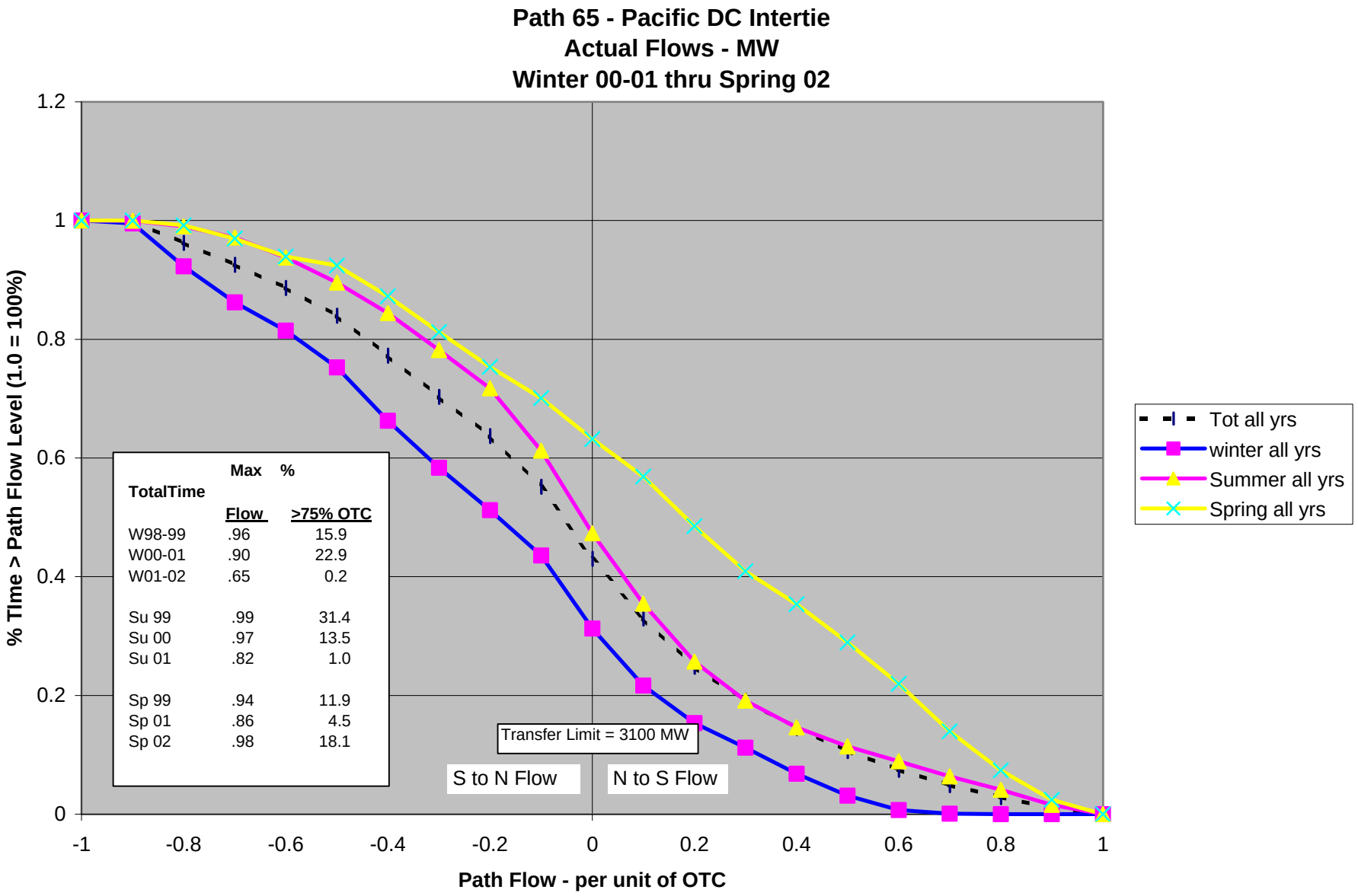
	Max Flow	% Time >75% OTC
W98-99	.84	8.3
W00-01	.86	30.7
W01-02	.83	9.1
Su 99	.90	12.1
Su 00	.89	23.0
Su 01	.88	15.8
Sp 99	.62	0
Sp 01	.94	37.8
Sp 02	.69	0.1



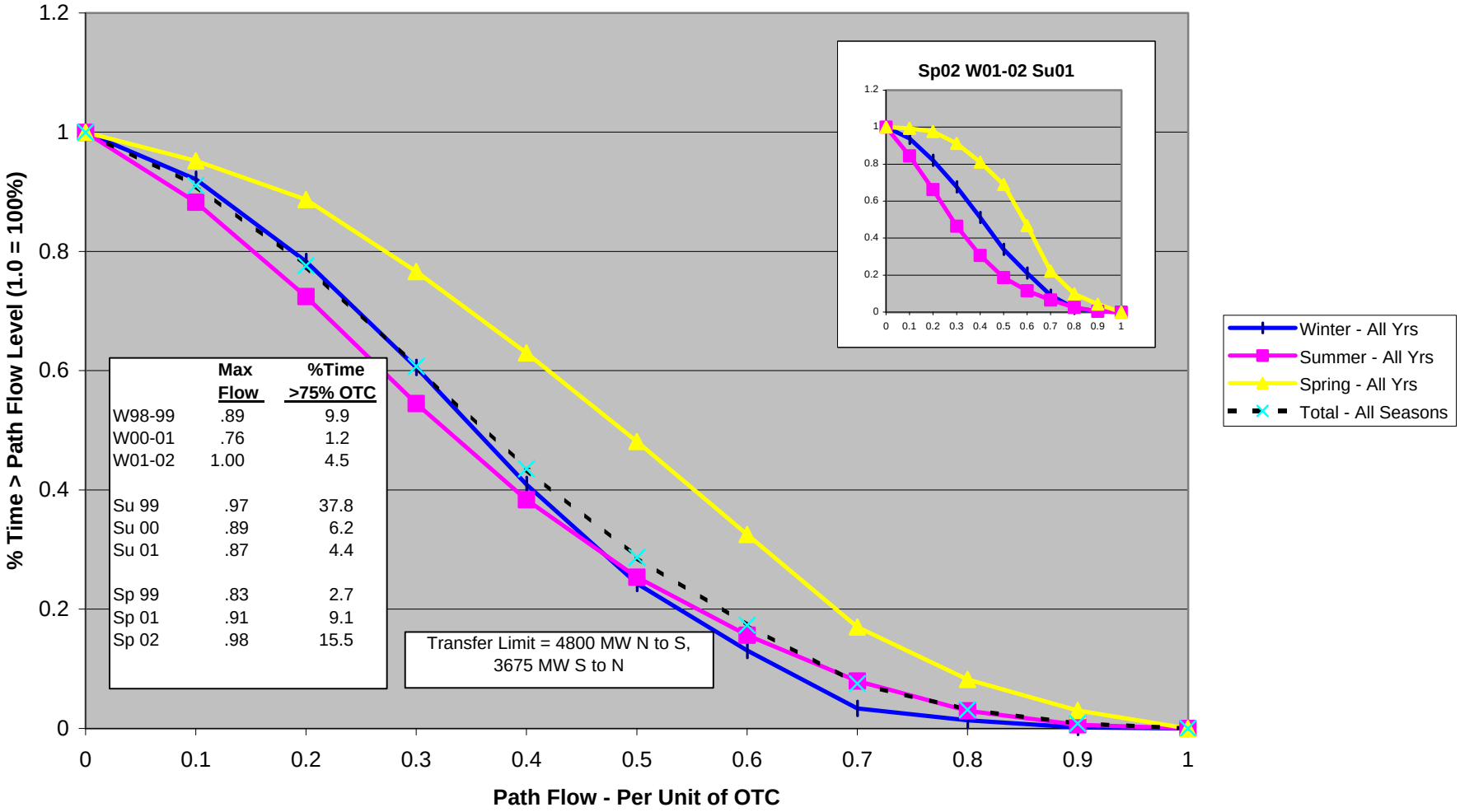
Time	Max Flow	% Total >75% OTC
W98-99	.69	0.1
W00-01	.57	0
W01-02	.67	0.1
Su 99	.86	4.0
Su 00	.89	6.4
Su 01	.71	0.2
Sp 99	.72	0.4
Sp 01	.58	0
Sp 02	.91	9.8


Path 19 Bridger West
Actual MW Flow
Winter 00-01 thru Spring 02
% Time > Path Flow Level (1.0 = 100%)
Path Flow - Per Unit of OTC
0
0.2
0.4
0.6
0.8
1
1.2
0.1
0.3
0.5
0.7
0.9
Winter - All Yrs
Summer - All Yrs
Spring - All Yrs
Total - All Seasons
Max Flow
% Time >75%
OTC
W98-99 .99 74.0
W00-01 1.00 98.6
W01-02 .98 81.1
Su 99 .98 72.9
Su 00 1.00 81.7
Su 01 1.34 80.3
Sp 99 .90 25.8
Sp 01 1.00 86.6
Sp 02 .87 16.5
Sp02 W01-02 Su01
Transfer Limit = 2200 MW E to W


Path 32 - Pavant - Gonder
Actual Flows - MW
Winter 00-01 thru Spring 02
% TIme > Path Flow Level (1.0 = 100%)
1.2
1
0.8
0.6
0.4
0.2
0
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
Path Flow - per unit of OTC
Max Flow
% Total Time >75% OTC
W98-99 .81 8.3
W00-01 .59 0
W01-02 .68 0
Su 99 .74 0.8
Su 00 .52 0
Su 01 .59 0
Sp 99 .75 0.8
Sp 01 .58 0
Sp 02 .64 0
Transfer Limit = 245 MW E to W, 150 MW W to E
Flow W to E
Flow E to W
Tot all yrs
winter all yrs
Summer all yrs
Spring all yrs

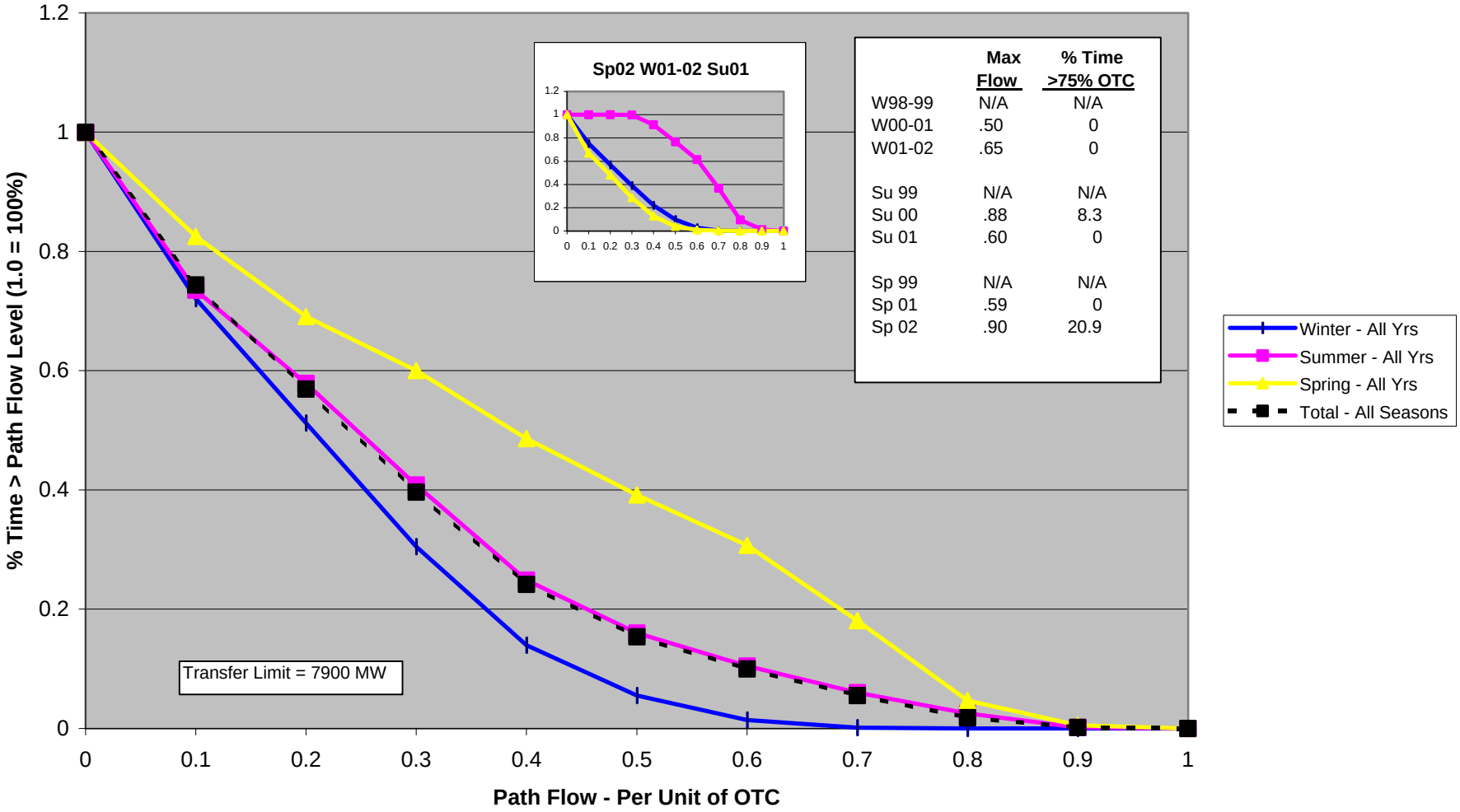

Path 65 - Pacific DC Intertie
Actual Flows - MW
Winter 00-01 thru Spring 02
% TIme > Path Flow Level (1.0 = 100%)
Path Flow - per unit of OTC
1.2
1
0.8
0.6
0.4
0.2
0
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
Tot all yrs
winter all yrs
Summer all yrs
Spring all yrs
Transfer Limit = 3100 MW
S to N Flow
N to S Flow
TotalTime
Max Flow
% >75% OTC
W98-99 .96 15.9
W00-01 .90 22.9
W01-02 .65 0.2
Su 99 .99 31.4
Su 00 .97 13.5
Su 01 .82 1.0
Sp 99 .94 11.9
Sp 01 .86 4.5
Sp 02 .98 18.1

Path 66 - COI
Actual MW Flow
Winter 00-01 thru Spring 02

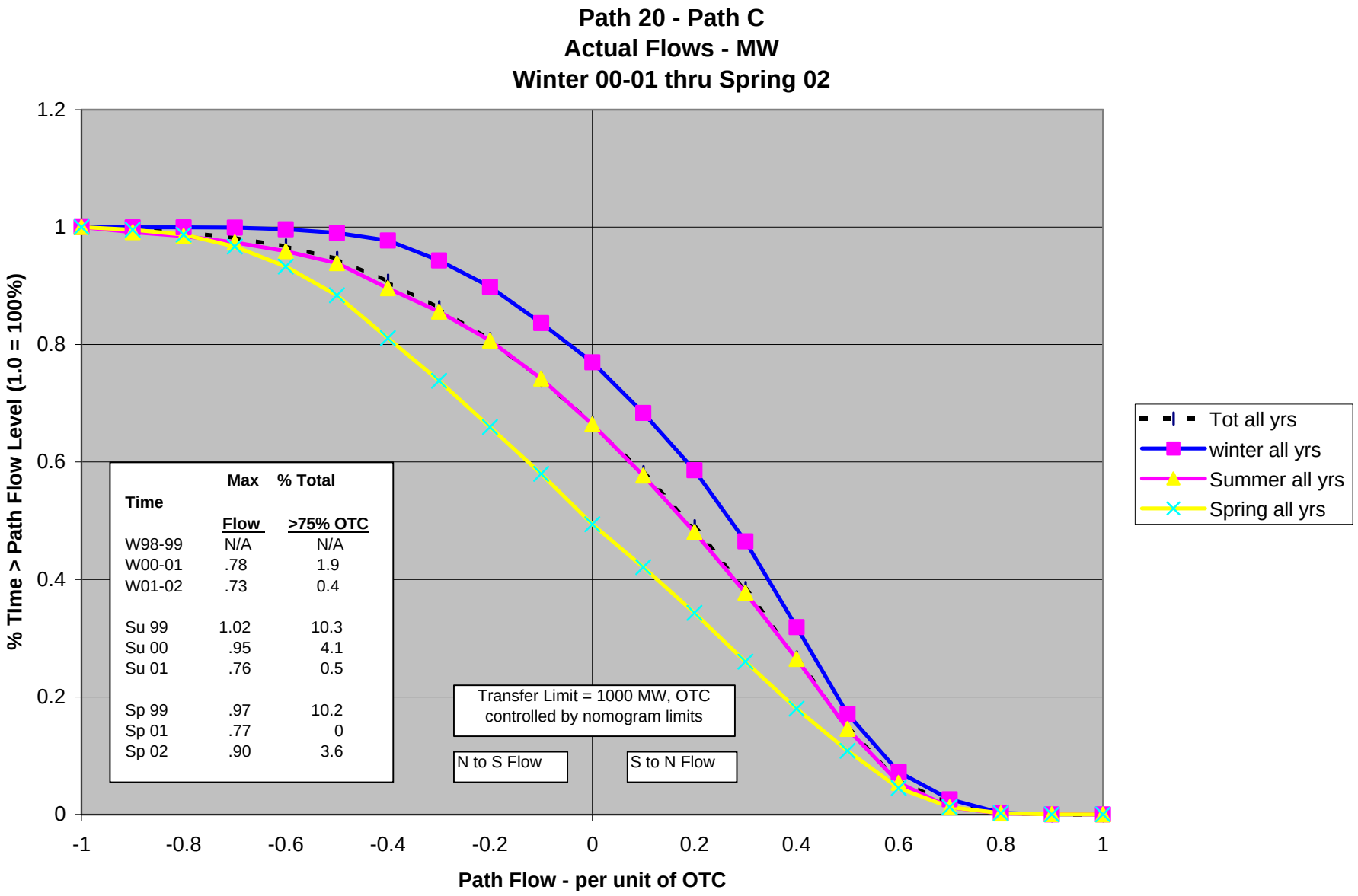


	Max Flow	%Time >75% OTC
W98-99	.89	9.9
W00-01	.76	1.2
W01-02	1.00	4.5
Su 99	.97	37.8
Su 00	.89	6.2
Su 01	.87	4.4
Sp 99	.83	2.7
Sp 01	.91	9.1
Sp 02	.98	15.5

Path 73 North of John Day
Actual MW Flow
Winter 00-01 thru Spring 02

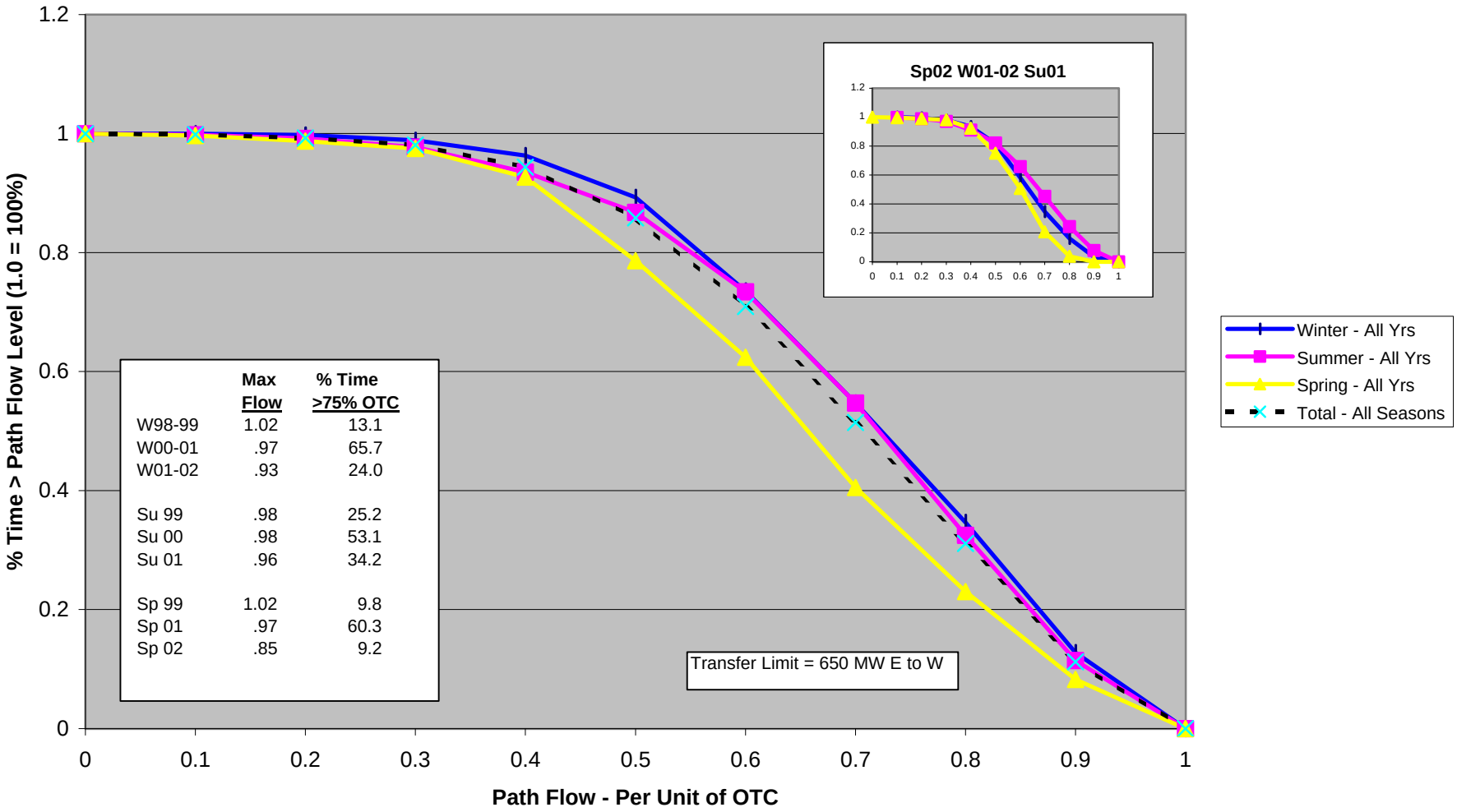


	Max Flow	% Time >75% OTC
W98-99	N/A	N/A
W00-01	.50	0
W01-02	.65	0
Su 99	N/A	N/A
Su 00	.88	8.3
Su 01	.60	0
Sp 99	N/A	N/A
Sp 01	.59	0
Sp 02	.90	20.9

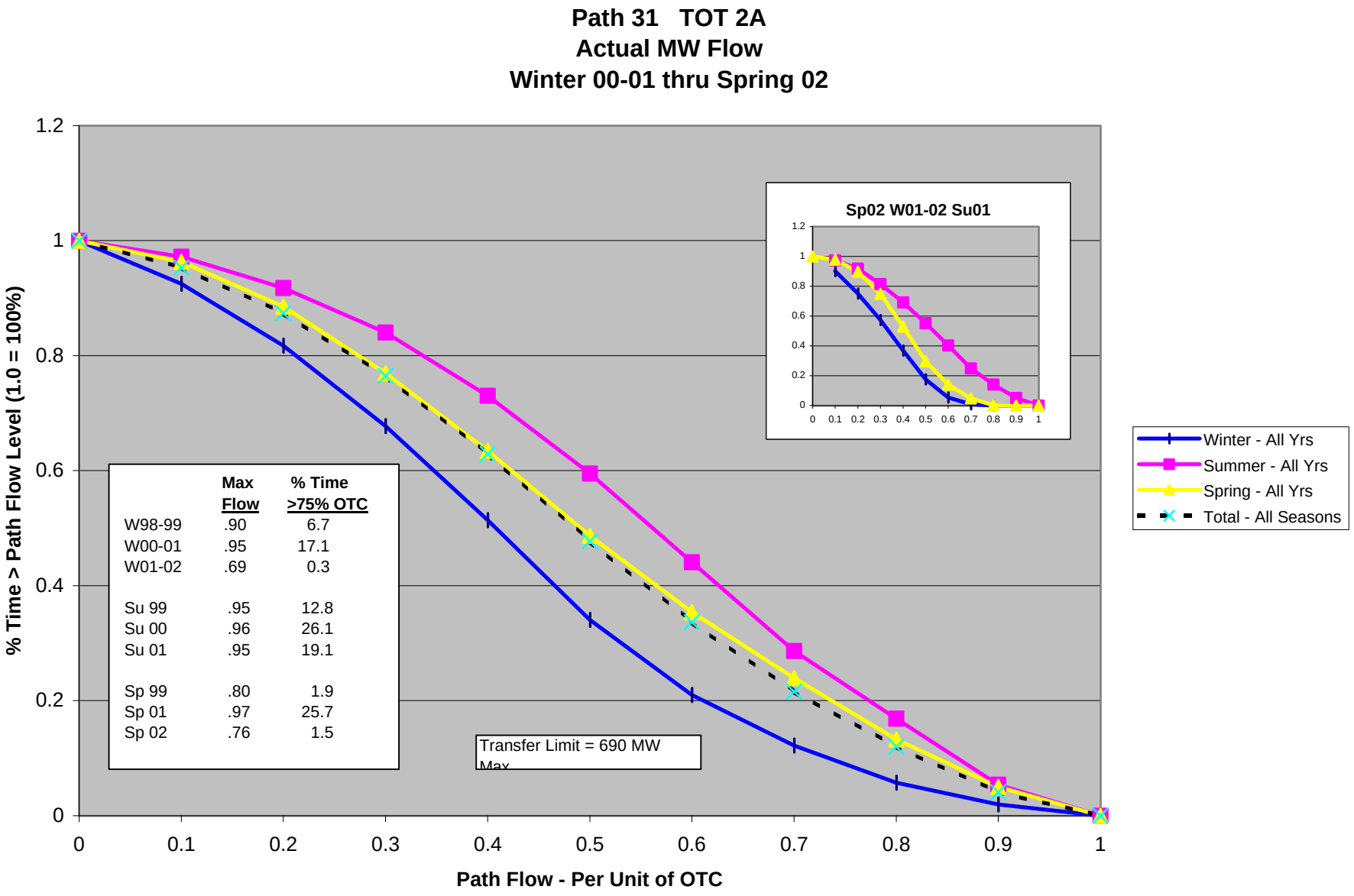


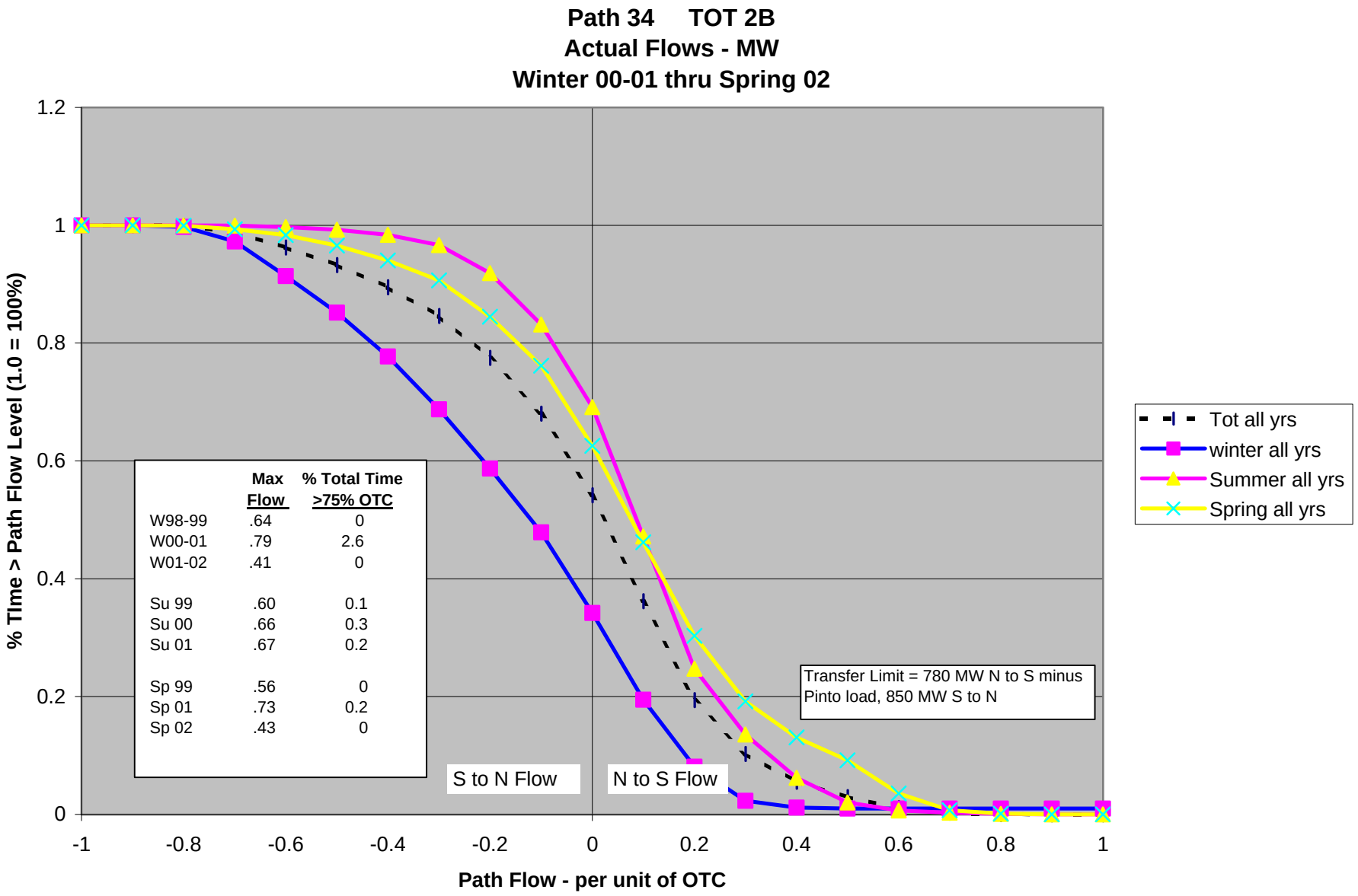
Time	Max Flow	% Total >75% OTC
W98-99	N/A	N/A
W00-01	.78	1.9
W01-02	.73	0.4
Su 99	1.02	10.3
Su 00	.95	4.1
Su 01	.76	0.5
Sp 99	.97	10.2
Sp 01	.77	0
Sp 02	.90	3.6

Path 30 TOT 1A
Actual MW Flow
Winter 00-01 thru Spring 02

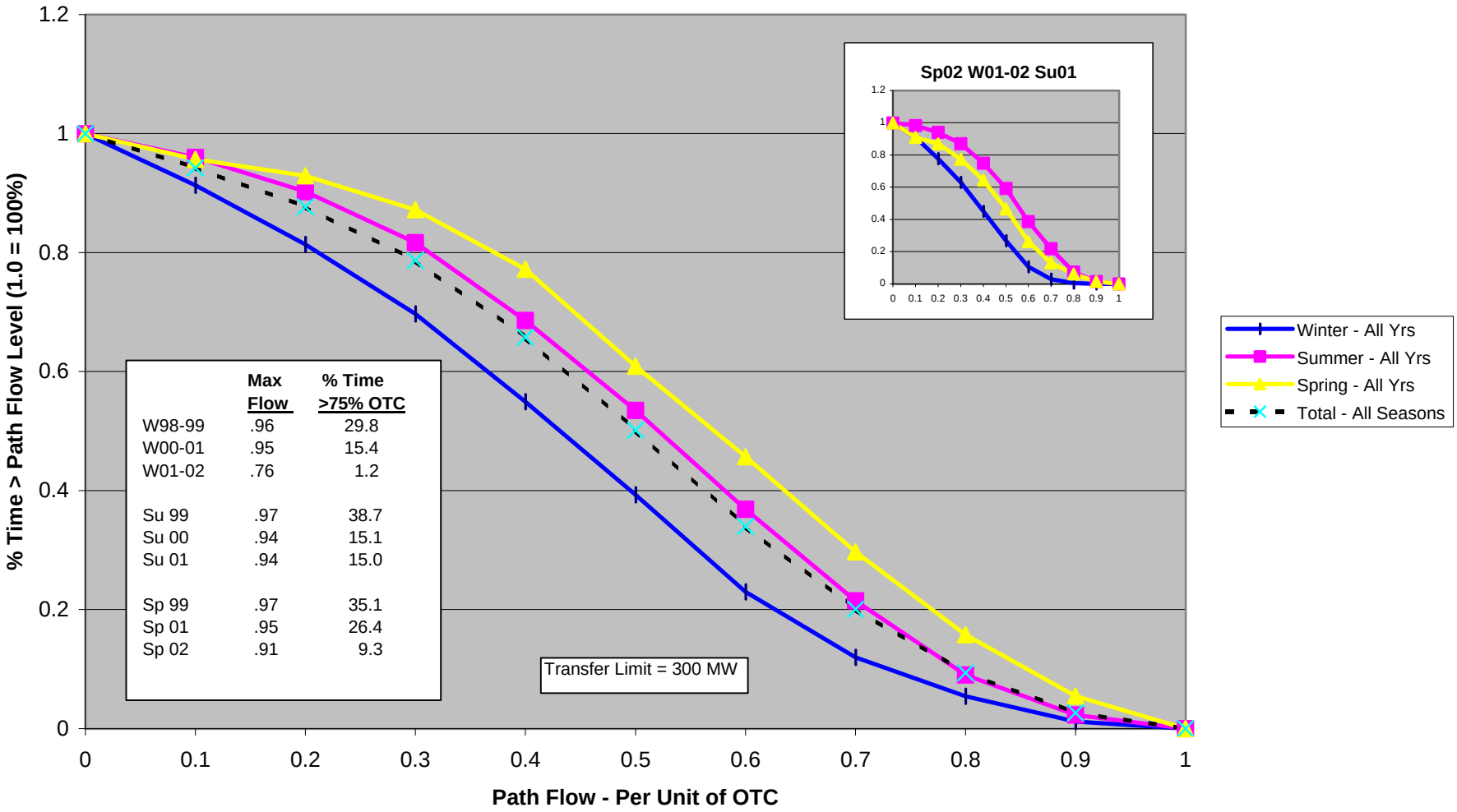


	Max Flow	% Time >75% OTC
W98-99	1.02	13.1
W00-01	.97	65.7
W01-02	.93	24.0
Su 99	.98	25.2
Su 00	.98	53.1
Su 01	.96	34.2
Sp 99	1.02	9.8
Sp 01	.97	60.3
Sp 02	.85	9.2

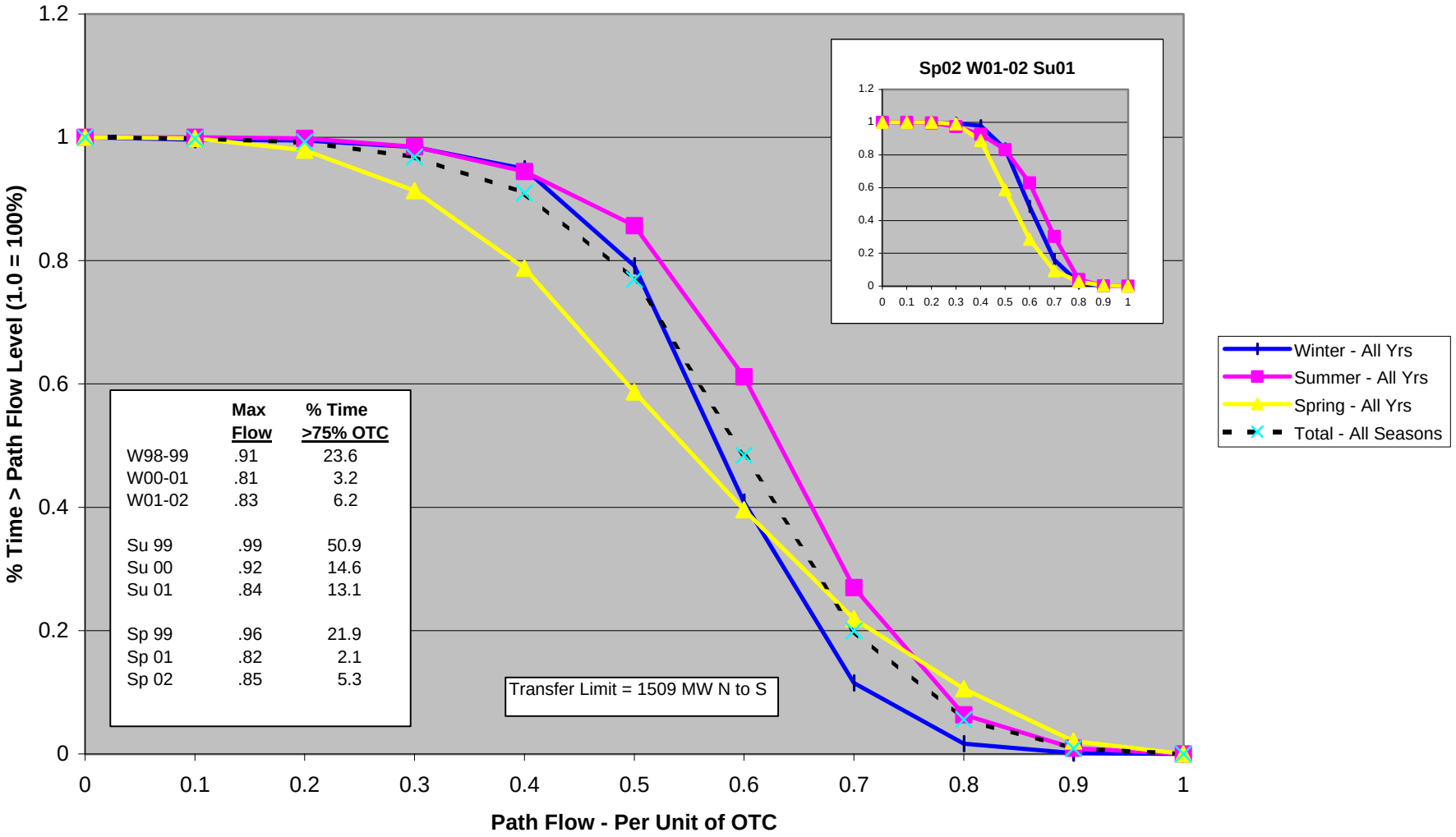

Path 31 TOT 2A
Actual MW Flow
Winter 00-01 thru Spring 02
% Time > Path Flow Level (1.0 = 100%)
Path Flow - Per Unit of OTC
Max Flow
% Time >75% OTC
W98-99 .90 6.7
W00-01 .95 17.1
W01-02 .69 0.3
Su 99 .95 12.8
Su 00 .96 26.1
Su 01 .95 19.1
Sp 99 .80 1.9
Sp 01 .97 25.7
Sp 02 .76 1.5
Transfer Limit = 690 MW
Max
Sp02 W01-02 Su01
Winter - All Yrs
Summer - All Yrs
Spring - All Yrs
Total - All Seasons


Path 34 TOT 2B
Actual Flows - MW
Winter 00-01 thru Spring 02
% TIme > Path Flow Level (1.0 = 100%)
Path Flow - per unit of OTC
1.2
1
0.8
0.6
0.4
0.2
0
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
Max Flow
% Total Time >75% OTC
W98-99 .64 0
W00-01 .79 2.6
W01-02 .41 0
Su 99 .60 0.1
Su 00 .66 0.3
Su 01 .67 0.2
Sp 99 .56 0
Sp 01 .73 0.2
Sp 02 .43 0
S to N Flow
N to S Flow
Transfer Limit = 780 MW N to S minus Pinto load, 850 MW S to N
Tot all yrs
winter all yrs
Summer all yrs
Spring all yrs

Path 35 TOT 2C
Actual MW Flow
Winter 00-01 thru Spring 02

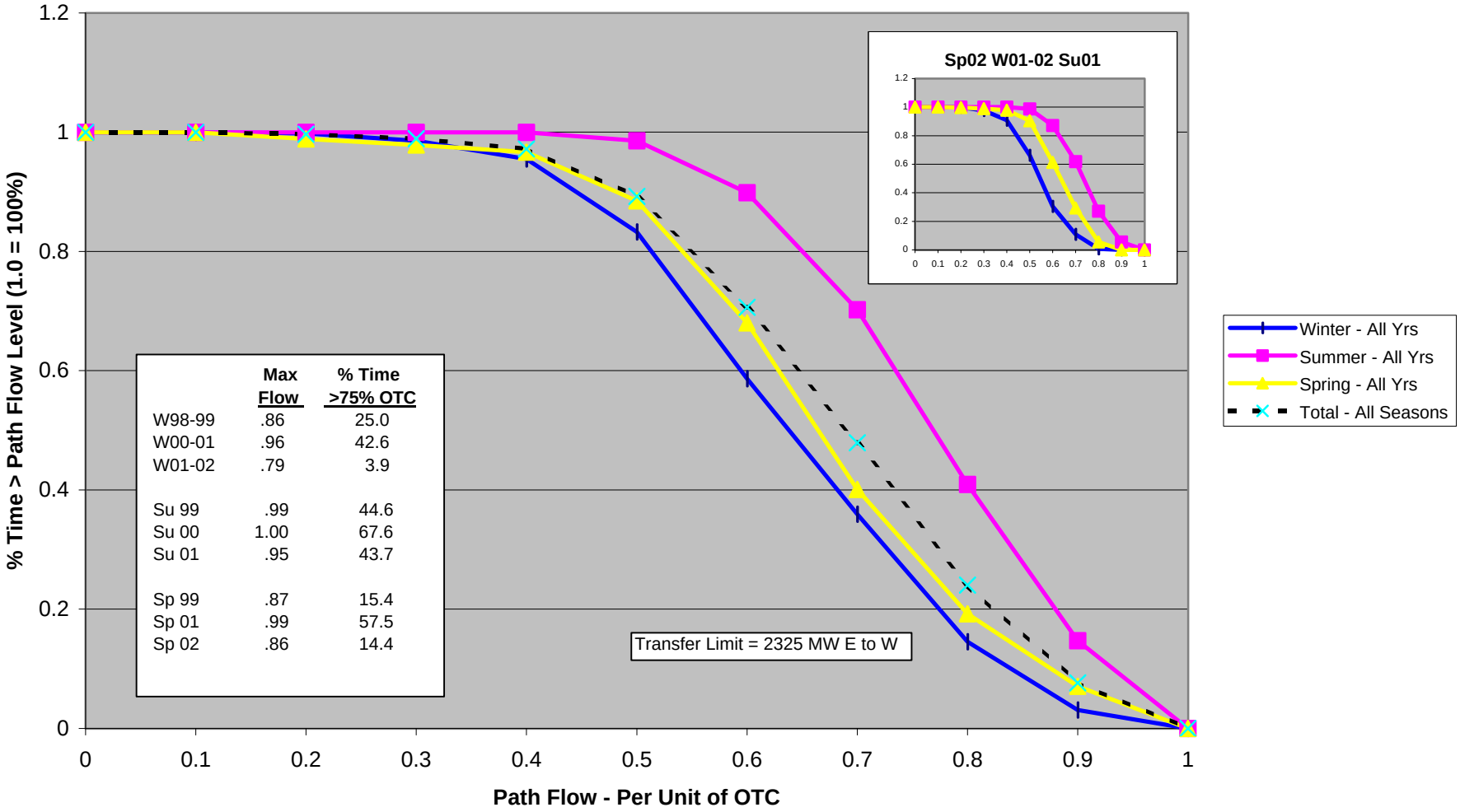


Path 36 TOT 3
Actual MW Flow
Winter 00-01 thru Spring 02

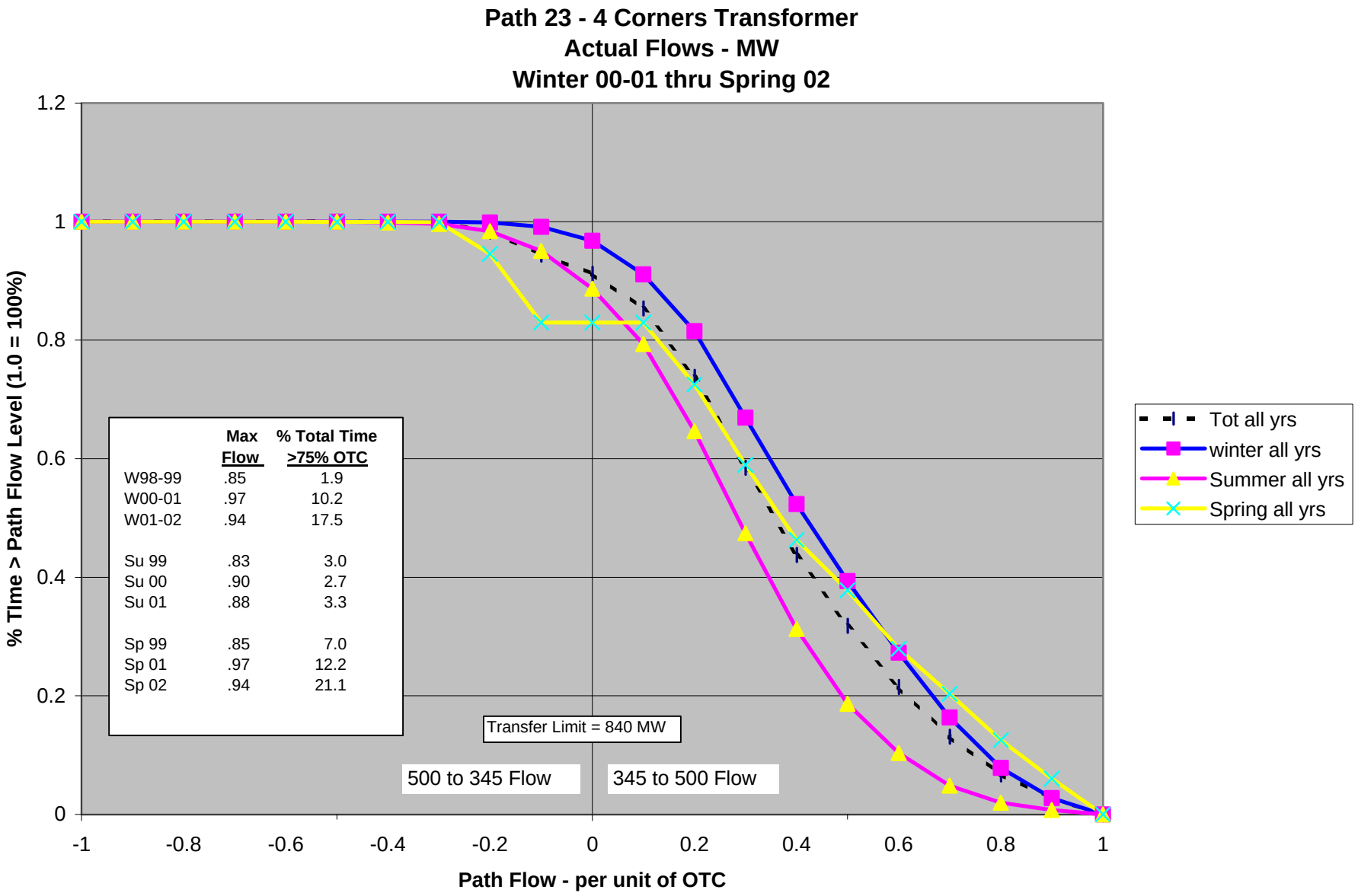


	Max Flow	% Time >75% OTC
W98-99	.91	23.6
W00-01	.81	3.2
W01-02	.83	6.2
Su 99	.99	50.9
Su 00	.92	14.6
Su 01	.84	13.1
Sp 99	.96	21.9
Sp 01	.82	2.1
Sp 02	.85	5.3

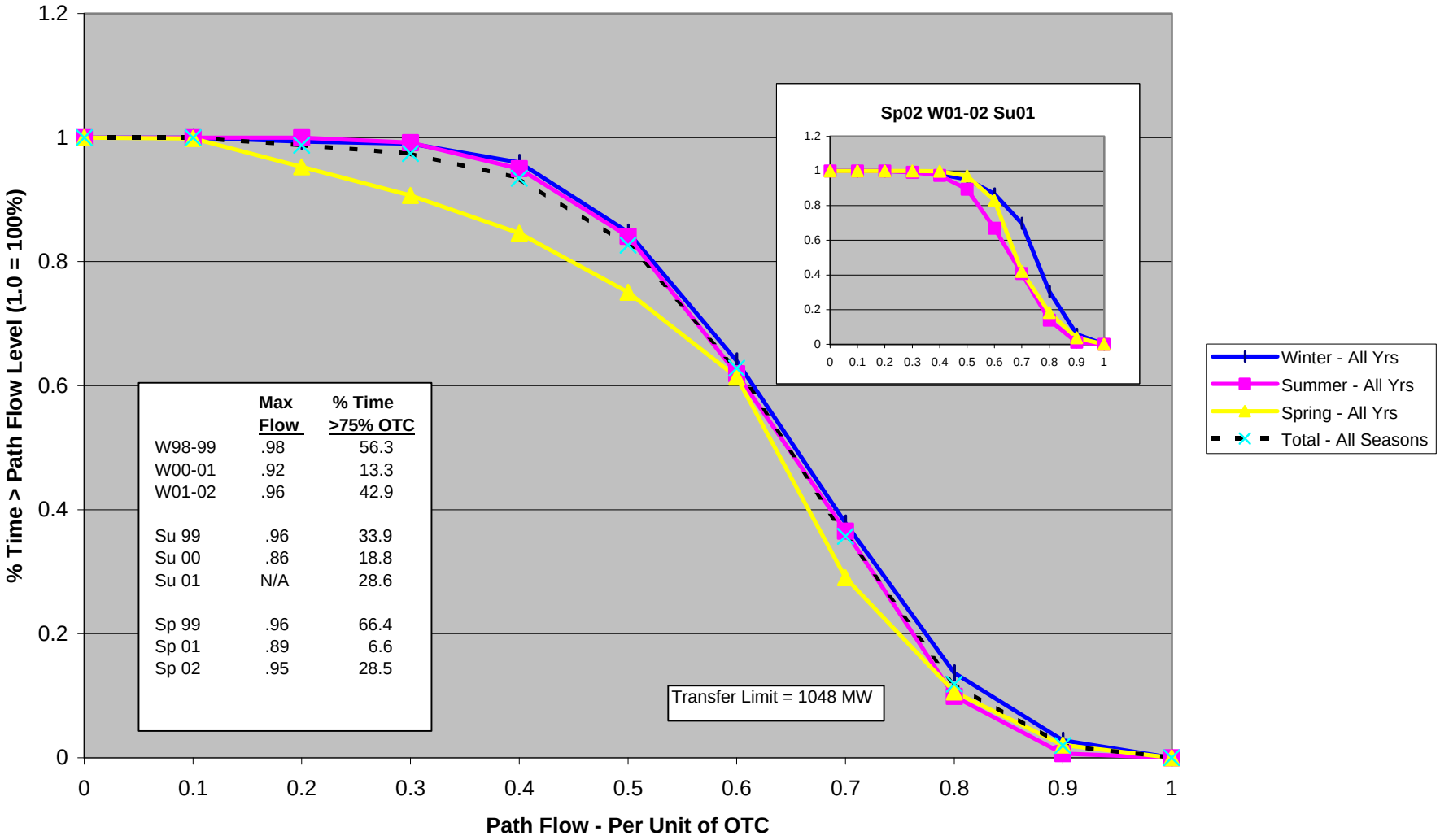
Path 22 - Southwest of 4 Corners Transformer
Actual Flows - MW
Winter 00-01 thru Spring 02



	Max Flow	% Time >75% OTC
W98-99	.86	25.0
W00-01	.96	42.6
W01-02	.79	3.9
Su 99	.99	44.6
Su 00	1.00	67.6
Su 01	.95	43.7
Sp 99	.87	15.4
Sp 01	.99	57.5
Sp 02	.86	14.4

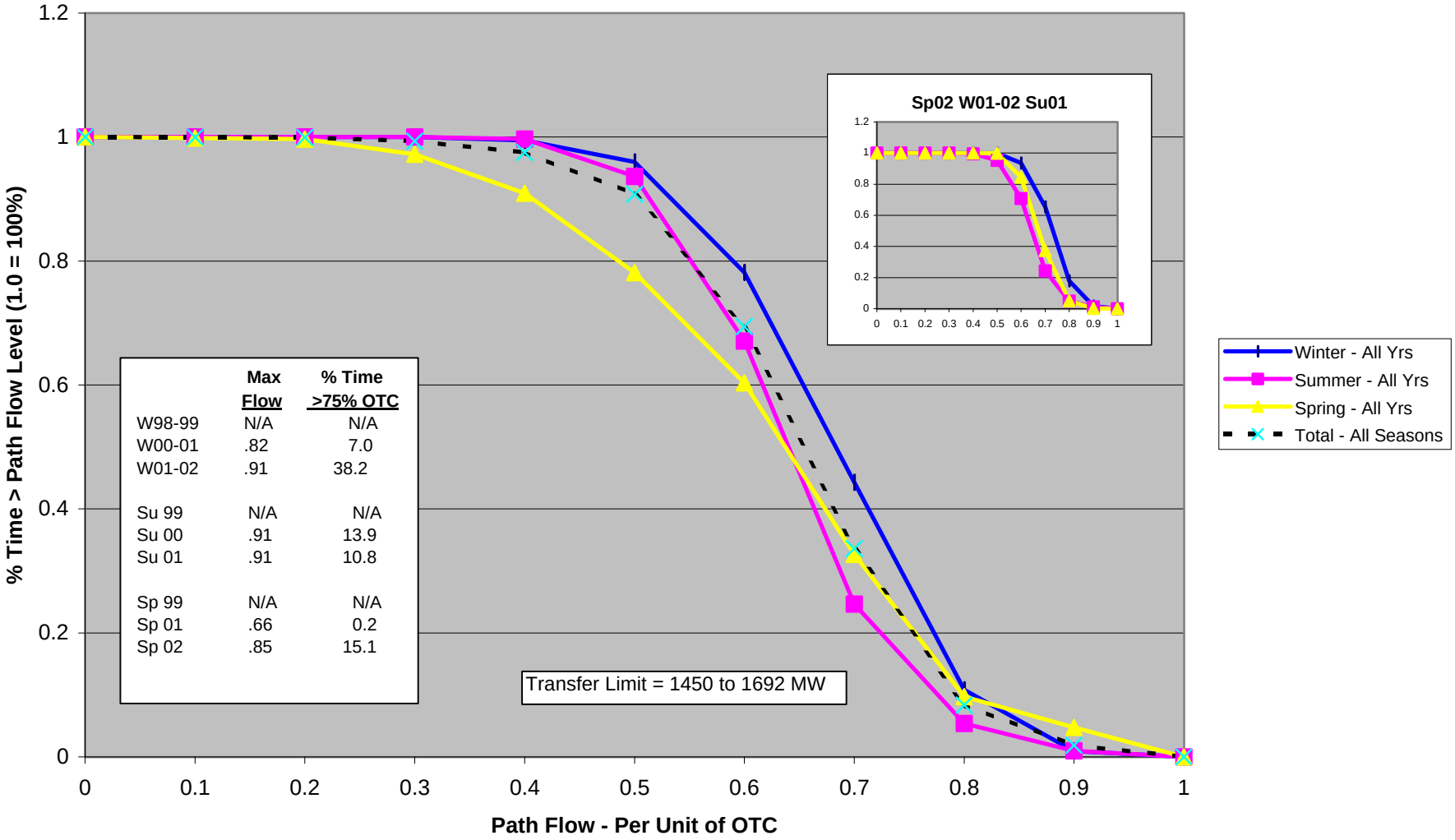

Path 23 - 4 Corners Transformer
Actual Flows - MW
Winter 00-01 thru Spring 02
% TIme > Path Flow Level (1.0 = 100%)
Path Flow - per unit of OTC
1.2
1
0.8
0.6
0.4
0.2
0
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
Max Flow
% Total Time >75% OTC
W98-99 .85 1.9
W00-01 .97 10.2
W01-02 .94 17.5
Su 99 .83 3.0
Su 00 .90 2.7
Su 01 .88 3.3
Sp 99 .85 7.0
Sp 01 .97 12.2
Sp 02 .94 21.1
Transfer Limit = 840 MW
500 to 345 Flow
345 to 500 Flow
Tot all yrs
winter all yrs
Summer all yrs
Spring all yrs

Path 47 Southern New Mexico
Actual MW Flow
Winter 00-01 thru Spring 02



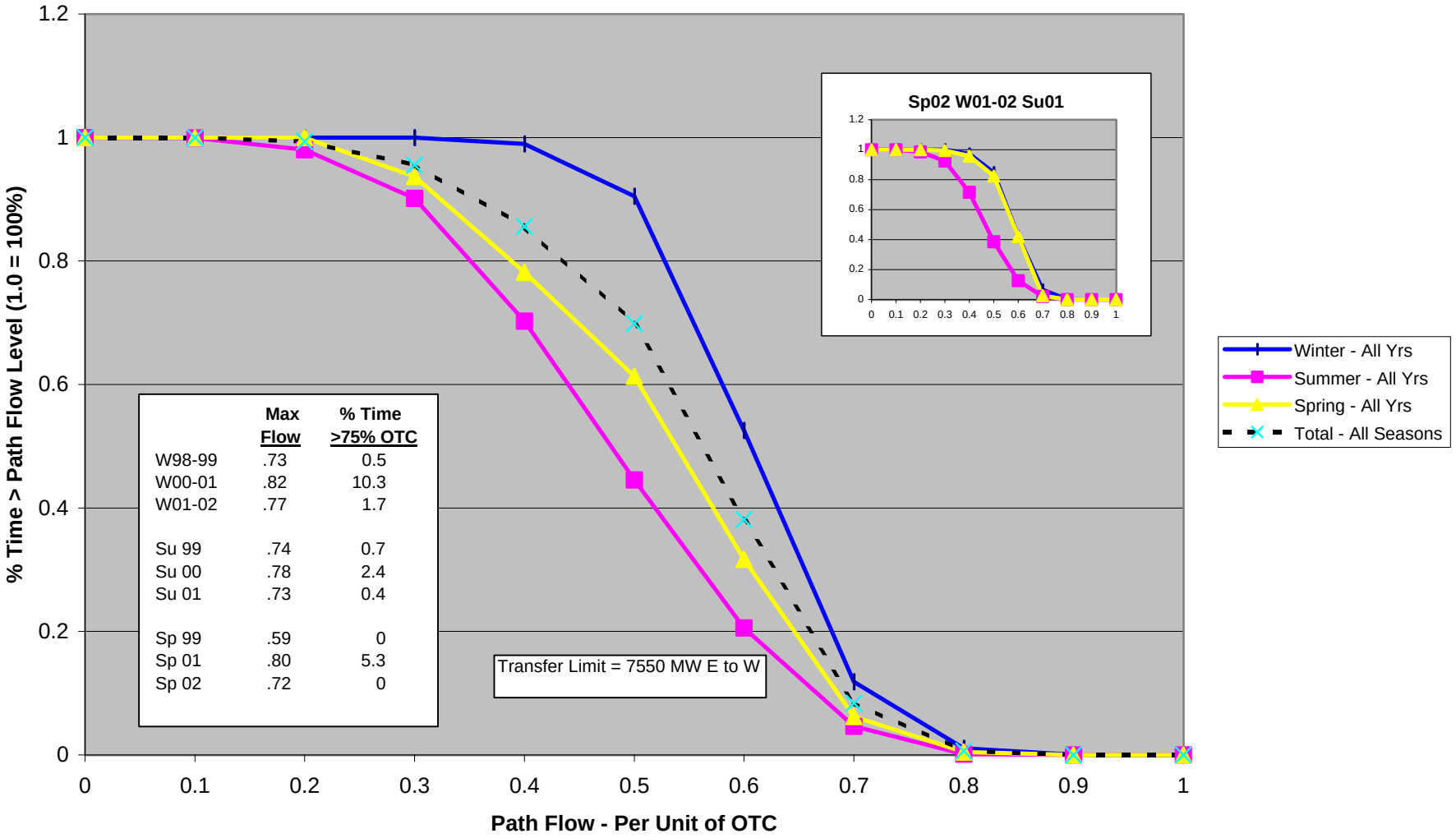
	Max Flow	% Time >75% OTC
W98-99	.98	56.3
W00-01	.92	13.3
W01-02	.96	42.9
Su 99	.96	33.9
Su 00	.86	18.8
Su 01	N/A	28.6
Sp 99	.96	66.4
Sp 01	.89	6.6
Sp 02	.95	28.5

Path 48 Northern New Mexico
Actual MW Flow
Winter 00-01 thru Spring 02



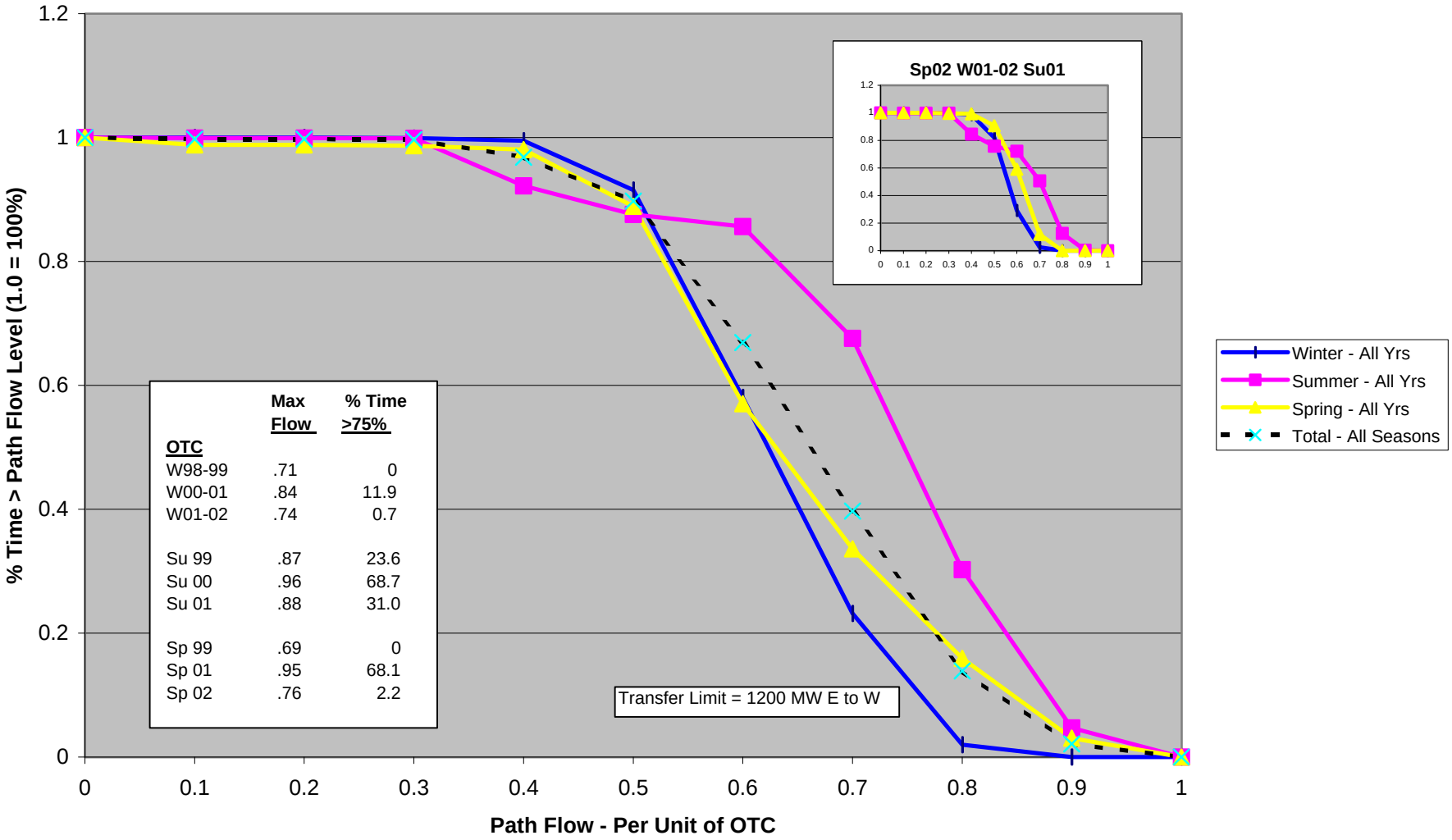
	Max Flow	% Time >75% OTC
W98-99	N/A	N/A
W00-01	.82	7.0
W01-02	.91	38.2
Su 99	N/A	N/A
Su 00	.91	13.9
Su 01	.91	10.8
Sp 99	N/A	N/A
Sp 01	.66	0.2
Sp 02	.85	15.1

Path 49 East of Colorado River
Actual MW Flow
Winter 00-01 thru Spring 02



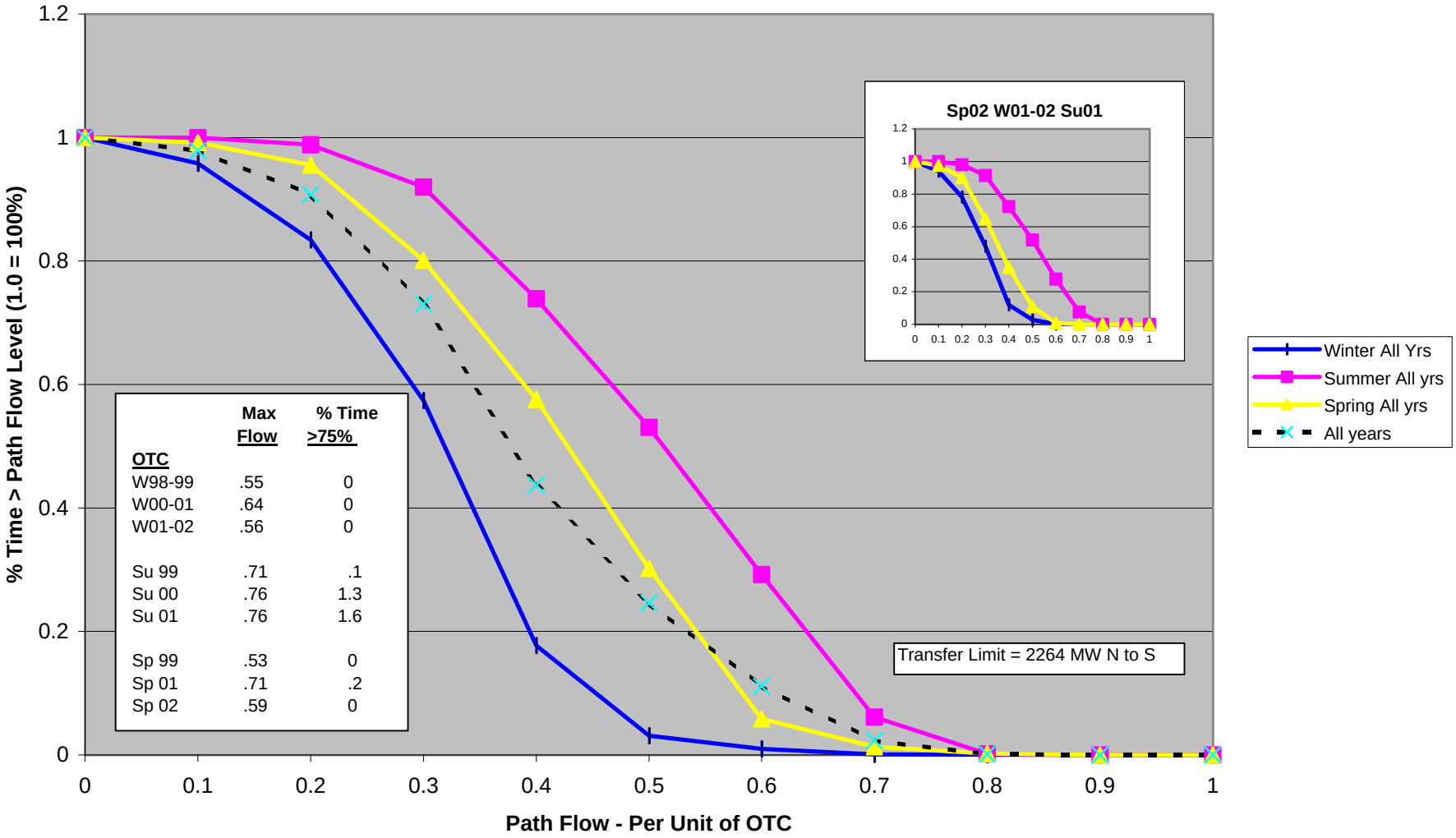
	Max Flow	% Time >75% OTC
W98-99	.73	0.5
W00-01	.82	10.3
W01-02	.77	1.7
Su 99	.74	0.7
Su 00	.78	2.4
Su 01	.73	0.4
Sp 99	.59	0
Sp 01	.80	5.3
Sp 02	.72	0

Path 50 Cholla - Pinnacle Peak
Actual MW Flow
Winter 00-01 thru Spring 02



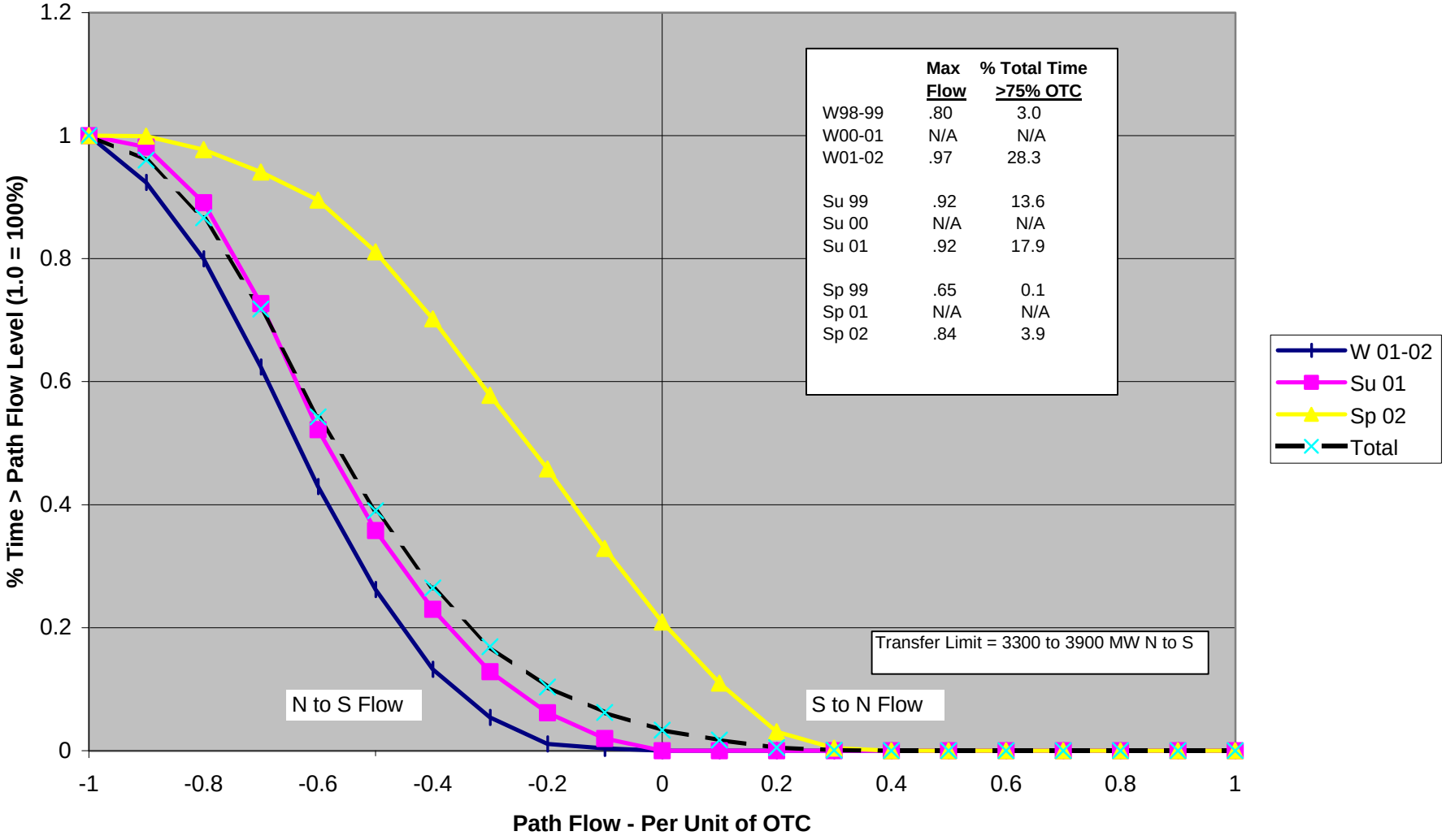
OTC	Max Flow	% Time >75%
W98-99	.71	0
W00-01	.84	11.9
W01-02	.74	0.7
Su 99	.87	23.6
Su 00	.96	68.7
Su 01	.88	31.0
Sp 99	.69	0
Sp 01	.95	68.1
Sp 02	.76	2.2

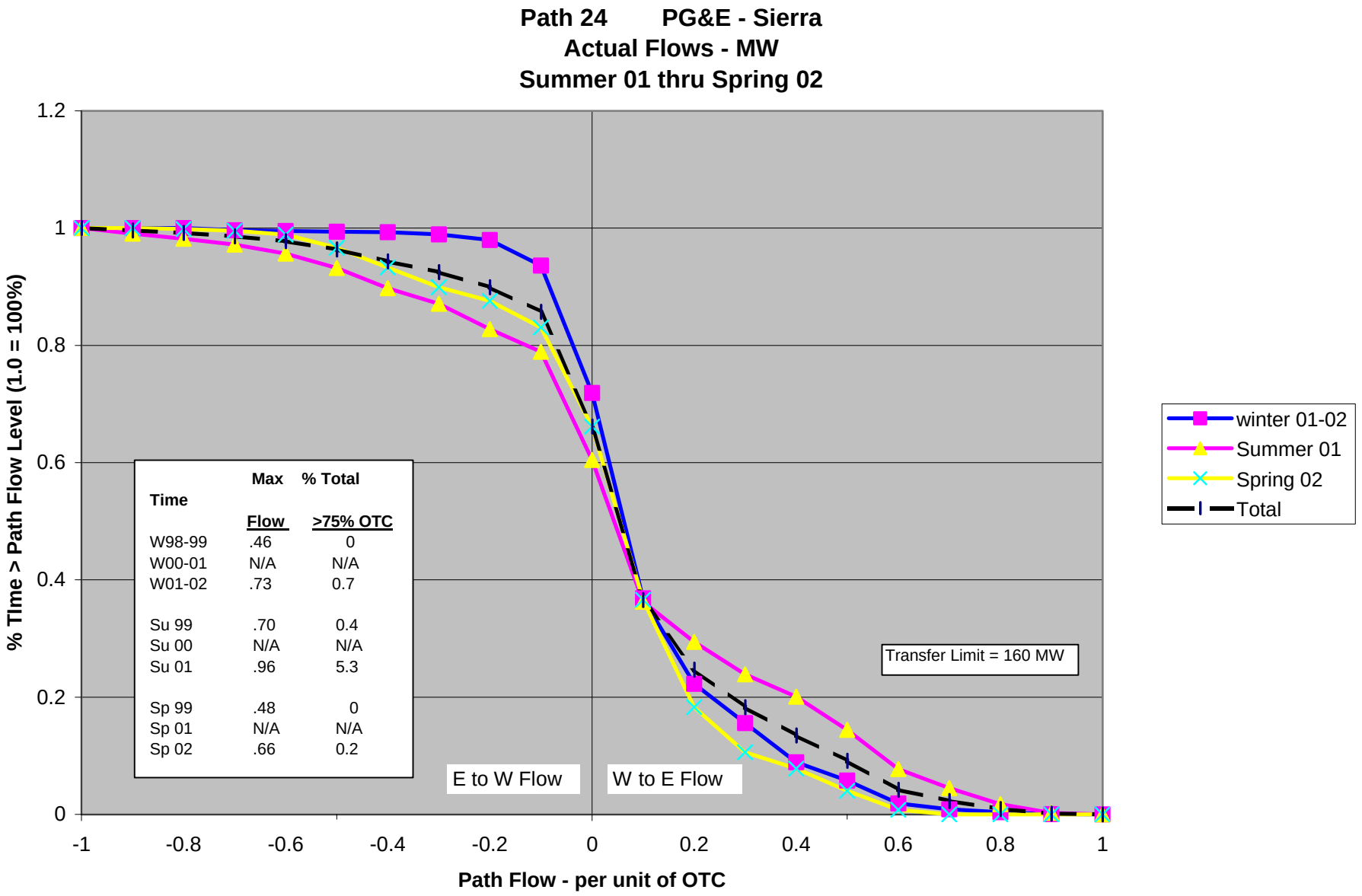
Path 51 Southern Navajo
Actual MW Flow
Winter 00-01 thru Spring 02



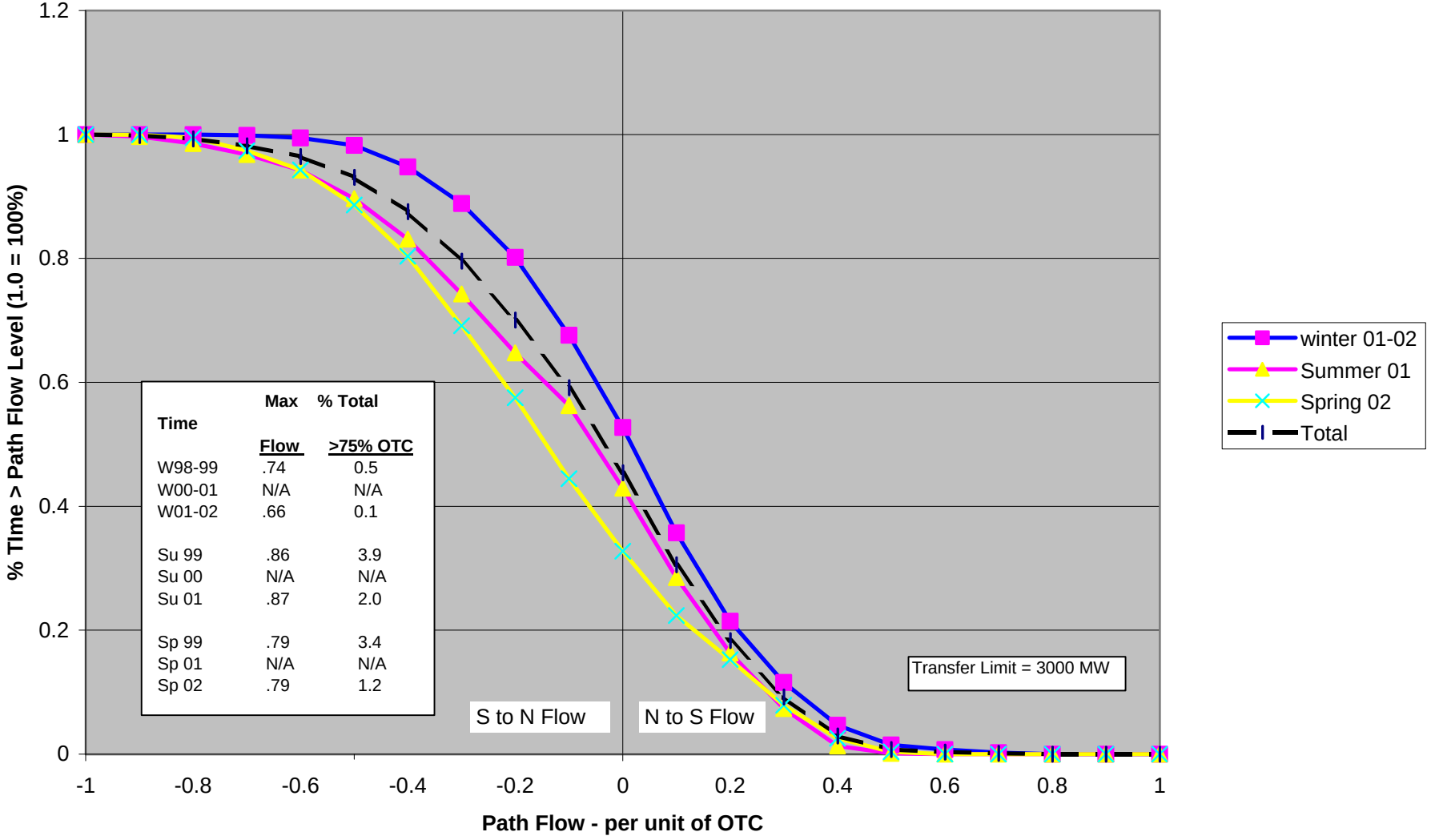
OTC	Max Flow	% Time >75%
W98-99	.55	0
W00-01	.64	0
W01-02	.56	0
Su 99	.71	.1
Su 00	.76	1.3
Su 01	.76	1.6
Sp 99	.53	0
Sp 01	.71	.2
Sp 02	.59	0

Path 15 Midway - Los Banos
Actual Flows - MW
Summer 01 thru Spring 02



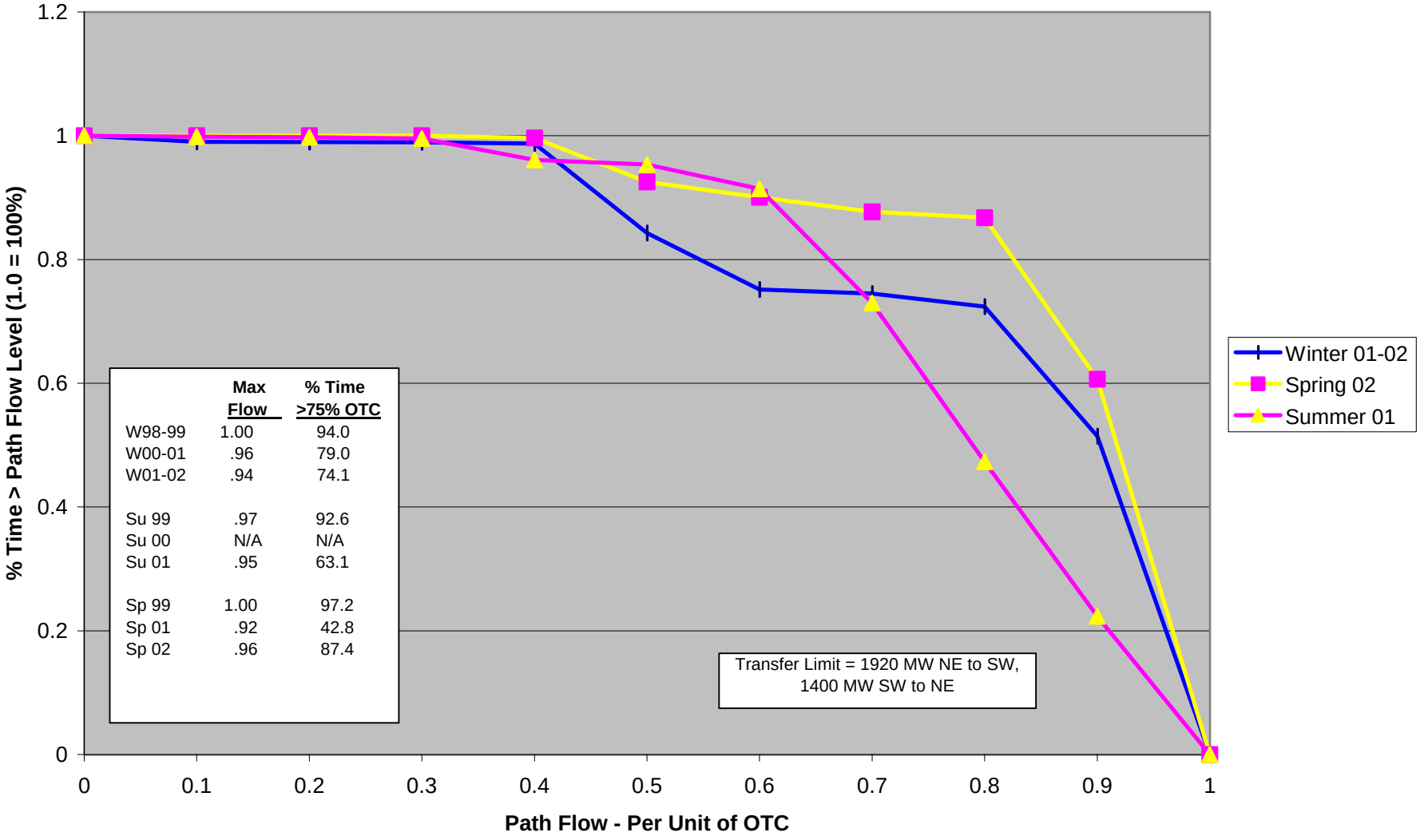

Path 24 PG&E - Sierra
Actual Flows - MW
Summer 01 thru Spring 02
% TIme > Path Flow Level (1.0 = 100%)
Path Flow - per unit of OTC
1.2
1
0.8
0.6
0.4
0.2
0
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
Time
Max Flow
% Total >75% OTC
W98-99 .46 0
W00-01 N/A N/A
W01-02 .73 0.7
Su 99 .70 0.4
Su 00 N/A N/A
Su 01 .96 5.3
Sp 99 .48 0
Sp 01 N/A N/A
Sp 02 .66 0.2
E to W Flow
W to E Flow
Transfer Limit = 160 MW
winter 01-02
Summer 01
Spring 02
Total

Path 26 N to S California
Actual Flows - MW
Summer 01 thru Spring 02

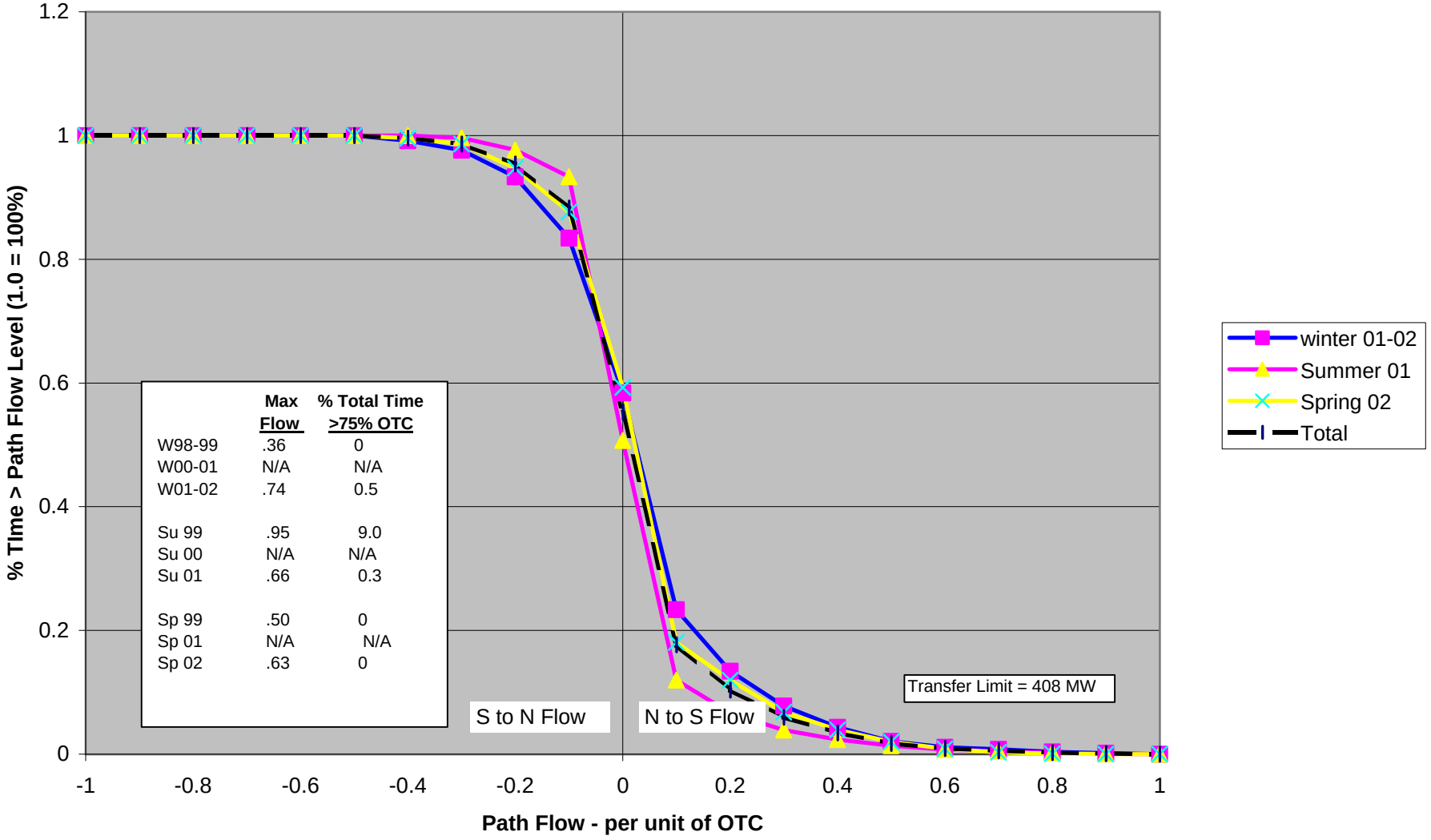


Time	Max Flow	% Total >75% OTC
W98-99	.74	0.5
W00-01	N/A	N/A
W01-02	.66	0.1
Su 99	.86	3.9
Su 00	N/A	N/A
Su 01	.87	2.0
Sp 99	.79	3.4
Sp 01	N/A	N/A
Sp 02	.79	1.2

Path 27 Intermountain Power Project DC Line
Actual MW Flow
Summer 01 thru Spring 02



Path 45 SDG&E - CFE
Actual Flows - MW
Summer 01 thru Spring 02



Path 46 West of Colorado River
Actual MW Flow
Summer 01 thru Spring 02

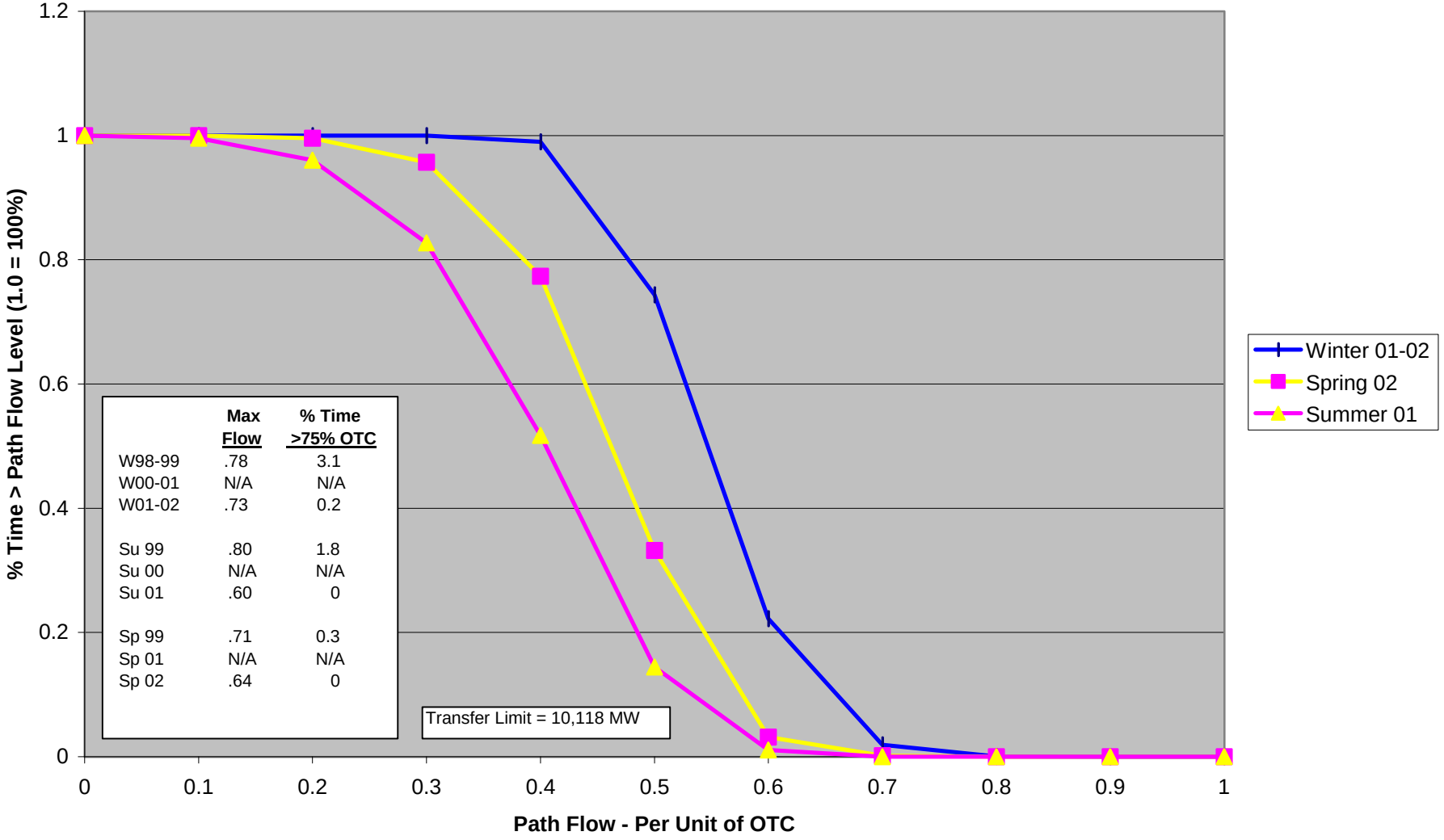


TABLE I
OTC Assumptions and Seasonal Data Used in Analysis

Path	OTC Assumption	Winter Seasons (November thru March)	Summer Seasons (June thru October)	Spring Seasons (April & May)
3 – Northwest - Canada	OTC is posted; magnitude does not vary. Therefore, used posted values from BPA web site which vary.	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
4 – W of Cascades - N	OTC not posted - - Used 9800 MW all times	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
5 – W of Cascades - S	OTC not posted - - Used 7000 MW all times	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
6 – West of Hatwai	OTC is posted - - Used posted values capped at 2800 MW	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
8 – Montana - Northwest	OTC is Posted - - Used posted value (2200 MW all times)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
14 – Idaho - Northwest	OTC not posted - - Used 2400 MW E to W 1200 MW W to E	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
15 – Los Banos - Gates	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 01-02	Su 99 (Max & 75%) Su 01	Sp 99 (Max & 75%) Sp 02
16 – Idaho - Sierra	OTC is Posted - - Used posted value (500 MW all times)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
17 – Borah West	OTC not posted Used 2307 MW all times	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
18 – Idaho - Montana	OTC not posted - - Used 337 MW all times)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
19 – Bridger West	OTC is posted - - Used posted OTC (varies to 2200 MW Max)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02

Path	OTC Assumption	Winter Seasons (November thru March)	Summer Seasons (June thru October)	Spring Seasons (April & May)
20 – Path C	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
22 – SW of 4 Corners	OTC is posted - - Used posted value (2325 MW all times)	W 98-99 (Max & 75%) W 99-00 W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
23 – 4 Corners Tx	OTC is posted - - Used posted value (840 MW all times)	W 98-99 (Max & 75%) W 99-00 W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
24 – PG&E Sierra	OTC not posted - - Used 100 MW all times	W 98-99 (Max & 75%) W 01-02	Su 99 (Max & 75%) Su 01	Sp 99 (Max & 75%) Sp 02
26 – N – S California	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 01-02	Su 99 (Max & 75%) Su 01	Sp 99 (Max & 75%) Sp 02
27 – IPP DC Line	OTC is posted - - Used posted value (3190 MW all times)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
30 – TOT 1A	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
31 – TOT 2A	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
32 – Pavant - Gonder	OTC is posted - - Used posted value (220 MW all times)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
34 – TOT 2B	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02

Path	OTC Assumption	Winter Seasons (November thru March)	Summer Seasons (June thru October)	Spring Seasons (April & May)
36 – TOT 3	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
46 – W of Colorado R.	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 01-02	Su 99 (Max & 75%) Su 01	Sp 99 (Max & 75%) Sp 02
47 – S New Mexico	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 99-00 W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
48 – N New Mexico	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
49 – E of Colorado R.	OTC is posted - - Used posted value – (magnitude varies)	W 98-99 (Max & 75%) W 99-00 W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
50 – Cholla – Pinnacle Peak	OTC is not posted – Used 1200 MW all times	W 98-99 (Max & 75%) W 99-00 W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
51 – S Navajo	OTC is posted - - Used posted value (2264 MW all times)	W 98-99 (Max & 75%) W 99-00 W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 00 Sp 01 Sp 02
65 – Pacific DC Intertie	OTC is posted - - Used posted OTC value (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
66 - COI	OTC is posted - - Used posted OTC value (magnitude varies)	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02
N of John Day	OTC not posted - - Used 8200 MW all times.	W 98-99 (Max & 75%) W 00-01 W 01-02	Su 99 (Max & 75%) Su 00 Su 01	Sp 99 (Max & 75%) Sp 01 Sp 02

TABLE II
Path Loading Summary
% Time exceeding 75% of OTC

Path	Winter			Spring			Summer		
	98-99	00-01	01-02	99	01	02	99	00	01
3 – Northwest – Canada	43.4	12.8	6.7	29.6	17.0	34.8	29.6	15.5	15.5
4 – W of Cascades – North	.1	0	0	0	0	1.1	0	0	0
5 – W of Cascades – South	2.7	4.6	0	0.1	0	0	0	0	0
6 – West of Hatwai	0	0	1.2	0	1.4	42.3	0	1.1	2.1
8 – Montana - Northwest	24.5	42.5	18.5	14.8	7.5	4.3	24.1	15.1	27.1
14 – Idaho - Northwest	1.7	0	0	0.9	0	0	0.3	0.8	0
15 – Los Banos - Gates	3.0	N/A	28.3	0.1	N/A	3.9	13.6	N/A	17.9
16 – Idaho - Sierra	9.3	0	0.2	4.4	0	3.8	1.5	0	0
17 – Borah West	8.3	30.7	9.1	0	37.8	0.1	12.1	23.0	15.8
18 – Idaho - Montana	0.1	0	0.1	0.4	0	9.8	4.0	6.4	0.2
19 – Bridger West	74.0	98.6	81.1	25.8	86.6	16.5	72.9	81.7	80.3
20 – Path C	N/A	1.9	0.4	10.2	0	3.6	10.3	4.1	0.5
22 – SW of 4 Corners	25.0	42.6	3.9	15.4	57.5	14.4	44.6	67.6	43.7
23 – 4 Corners Tx	1.9	10.2	17.5	7.0	12.2	21.1	3.0	2.7	3.3
24 – PG&E Sierra	0	N/A	0.7	0	N/A	0.2	0.4	N/A	5.3
26 – N – S California	0.5	N/A	0.1	3.4	N/A	1.2	3.9	N/A	2.0
27 – IPP DC Line	94.0	79.0	74.1	97.2	42.8	87.4	92.6	N/A	63.1

Path	Winter			Spring			Summer		
	98-99	00-01	01-02	99	01	02	99	00	01
30 – TOT 1A	13.1	65.7	24.0	9.8	60.3	9.2	25.2	53.1	34.2
31 – TOT 2A	6.7	17.1	0.3	1.9	25.7	1.5	12.8	26.1	19.1
32 – Pavant - Gonder	8.3	0	0	0.8	0	0	0.8	0	0
34 – TOT 2B	0	2.6	0	0	0.2	0	0.1	0.3	0.2
35 – TOT 2C	29.8	15.4	1.2	35.1	26.4	9.3	38.7	15.1	15.0
36 – TOT 3	23.6	3.2	6.2	21.9	2.1	5.3	50.9	14.6	13.1
45 – SDG&E – CFE	0	N/A	0.5	0	N/A	0	9.0	N/A	0.3
46 – W of Colorado 46 R.	3.1	N/A	0.2	0.3	N/A	0	1.8	N/A	0
47 – S New Mexico	56.3	13.3	42.9	66.4	6.6	28.5	33.9	18.8	28.6
48 – N New Mexico	N/A	7.0	38.2	N/A	0.2	15.1	N/A	13.9	10.8
49 – E of Colorado R.	0.5	10.3	1.7	0	5.3	0	0.7	2.4	0.4
50 – Cholla – Pinnacle Peak	0	11.9	0.7	0	68.1	2.2	23.6	68.7	31.0
51 – S Navajo	0	0	0	0	0.2	0	0.1	1.3	1.6
65 – Pacific DC Intertie	15.9	22.9	0.2	11.9	4.5	18.1	31.4	13.5	1.0
66 – COI	9.9	1.2	4.5	2.7	9.1	15.5	37.8	6.2	4.4
73 - N of John Day	N/A	0	0	N/A	0	20.9	N/A	8.3	0

TABLE III
Peak Path Loading Summary

Path	Winter			Spring			Summer		
	98-99	00-01	01-02	99	01	02	99	00	01
3 – Northwest – Canada	1.05	.96	.97	1.02	.96	.98	1.01	.95	.96
4 – W of Cascades – North	.71	.70	.65	.66	.57	.76	.63	.51	.54
5 – W of Cascades – South	.86	.78	.63	.70	.64	.60	.60	.56	.53
6 – West of Hatwai	.33	.47	.77	.52	.77	.94	.62	.76	.78
8 – Montana - Northwest	.95	.93	.92	.91	.86	.79	.97	.97	.92
14 – Idaho - Northwest	.77	.68	.60	.75	.65	.57	.73	.74	.56
15 – Los Banos - Gates	.80	N/A	.97	.65	N/A	.84	.92	N/A	.92
16 – Idaho - Sierra	.89	.30	.59	.84	.34	.86	.83	.50	.56
17 – Borah West	.84	.86	.83	.62	.94	.69	.90	.89	.88
18 – Idaho - Montana	.69	.57	.67	.72	.58	.91	.86	.89	.71
19 – Bridger West	.99	1.00	.98	.90	1.00	.87	.98	1.00	1.34
20 – Path C	N/A	.78	.73	.97	.77	.90	1.02	.95	.76
22 – SW of 4 Corners	.86	.96	.79	.87	.99	.86	.99	1.00	.95
23 – 4 Corners Tx	.85	.97	.94	.85	.97	.94	.83	.90	.88
24 – PG&E Sierra	.46	N/A	.73	.48	N/A	.66	.70	N/A	.96
26 – N – S California	.74	N/A	.66	.79	N/A	.79	.86	N/A	.87

Path	Winter			Spring			Summer		
	98-99	00-01	01-02	99	01	02	99	00	01
27 – IPP DC Line	1.0	.96	.94	1.00	.92	.96	.97	N/A	.95
30 – TOT 1A	1.02	.97	.93	1.02	.97	.85	.98	.98	.96
31 – TOT 2A	.90	.95	.69	.80	.97	.76	.95	.96	.95
32 – Pavant - Gonder	.81	.59	.68	.75	.58	.64	.74	.52	.59
34 – TOT 2B	.64	.79	.41	.56	.73	.43	.60	.66	.67
35 – TOT 2C	.96	.95	.76	.97	.95	.91	.97	.94	.94
36 – TOT 3	.91	.81	.83	.96	.82	.85	.99	.92	.84
Path 45 – SDG&E – CFE	.36	N/A	.74	.50	N/A	.63	.95	N/A	.66
46 – W of Colorado R.	.78	N/A	.73	.71	N/A	.64	.80	N/A	.60
47 – S New Mexico	.98	.92	.96	.96	.89	.95	.96	.86	N/A
48 – N New Mexico	N/A	.82	.91	N/A	.66	.85	N/A	.91	.91
49 – E of Colorado R.	.73	.82	.77	.59	.80	.72	.74	.78	.73
50 – Cholla – Pinnacle Peak	.71	.84	.74	.69	.95	.76	.87	.96	.88
51 – S Navajo	.55	.64	.56	.53	.71	.59	.71	.76	.76
65 – Pacific DC Intertie	.96	.90	.65	.94	.86	.98	.99	.97	.82
66 – COI	.89	.76	1.00	.83	.91	.98	.97	.89	.87
73 - N of John Day	N/A	.50	.65	N/A	.59	.90	N/A	.88	.60